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**A RAND NOTE**

**National Security Spending and Budget Trends  
Since World War II**

**Kevin N. Lewis**

**June 1990**

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## **National Security Spending and Budget Trends Since World War II**

**Kevin N. Lewis**

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**Prepared for the  
United States Air Force**

**RAND**

## PREFACE

The problem of reconciling the changing requirements of our national security preparations with resource constraints has vexed U.S. political and military planners since the end of World War II. Planners and policymakers readily acknowledge that the budgetary resources needed to maintain all of the military capabilities called for under any conservative, "needs-based" estimate of U.S. posture capabilities<sup>1</sup> are unlikely to be available short of national mobilization in response to a grave emergency. Accordingly, resource allocation within the larger national security planning process can be reasonably thought of as a problem of deciding where shortages should be allowed to reside within our defense postures and preparations and, indeed, how much of a gap between desired and realistic force structure we can tolerate at any given time.

Following an unprecedented peacetime defense buildup in the early and mid-1980s, U.S. national defense budgets have declined steadily, beginning with the FY86 budget.<sup>2</sup> A pattern of deepening austerity could remain a feature of the planning environment for some time to come. Given continuing national anxieties over deficits, growing interest in nondefense priorities, and various other matters, it is unclear how long a period of defense budget stagnation or decline may last.

Priorities within our national security enterprise remain similarly uncertain. Concerns over the proper level and mix of defense spending are amplified by developments on the international scene, chief among them possible changes in Soviet behavior and capabilities, the evolving place of the United States in various security coalitions, and the role of military power in a world in which economic power seems to many to be the proper new pivot of the global geopolitical balance.

It is no surprise, then, that national security spending is becoming a matter of widespread controversy. To date, many of the key issues in this debate have been

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<sup>1</sup>Such as those traditionally prepared by the Joint Chiefs of Staff (in their Joint Strategic Planning Document—JSPD—process) that reflect U.S. commitments and a full range of threats but not necessarily realistic resource constraints and considerations of political feasibility per se. Note that the joint planning process has, in the last couple of years, been substantially revamped.

<sup>2</sup>In terms of authority, although authority for defense spending peaked in FY85, outlays did not reach their recent maximum until FY87.



eclipsed by demands of the near-term political agenda; and many practical matters (such as the mechanisms of the Gramm-Rudman-Hollings sequestration process) defy easy characterization.

Already participants in the debate have begun to mobilize their arguments and supporting assessments regarding how much is enough and how much we can afford. Yet it often proves difficult to interpret and assess the contentions of those entering this debate, inasmuch as the contemporary defense resource conundrum has typically been framed in impressionistic terms. To inform more sophisticated analysis and debate, then, this Note seeks to cast the current decisionmaking context in a quantitative historical perspective.

This work has been conducted under the auspices of a Project AIR FORCE study, "Major Air Force Issues," conducted under the National Security Strategies Program. The main goals of this study have been to assess the consequences of certain strategy vs. capability imbalances and to distill meaningful historical lessons to support budget and posture planning in the years to come. The results are now being presented in several volumes.<sup>3</sup> These assessments should be of interest to planners involved with strategic deliberations as well as to those involved in more day-to-day planning tasks.

Obviously, much has transpired—budgetarily, politically, and strategically—since this document was "closed" upon entering the production process in 1989. A follow-on report, summarizing more recent developments and providing some future budget scenarios (and discussion of their implications for the DoD and U.S. Air Force), is now in production. Nonetheless, the historical points raised herein and other commentary remain useful in comprehending the long context within which recent developments and prospective future ones should be viewed.

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<sup>3</sup>Lewis, 1988, 1989a.

## SUMMARY

In the aftermath of the Vietnam War, the United States defense establishment suffered from certain maladies and constraints collectively known as the post-Vietnam "malaise" or "hangover." Among these effects, and possibly most pernicious of them all, was a series of defense budgets that were, by historical and other standards, unusually and perhaps excessively low. By the end of the 1970s, one consequence of an extended period of austerity was widely reckoned to be a debilitated and insufficient U.S. defense posture, not only because of resource starvation, but also because of the diversion of resources to Vietnam, the growth of Soviet and other adversary capabilities, confusion over U.S. goals and strategies, and assorted other problems. At the end of the 1970s, this situation was characterized as a serious strategy vs. force mismatch.

Beginning in the late 1970s with several global calamities, including the collapse of our nominal defense concept for the security of Southwest Asia and a generally more aggressive pattern of Soviet and Soviet proxy international behavior (including the USSR's invasion of Afghanistan), U.S. defense budgets finally began to move upward. The rehabilitation of the DoD program accelerated following the election of Ronald Reagan. In just two years (FY81 and FY82), the defense budget grew by almost 27 percent in real terms. At the time, ambitious plans were made for not only force modernization but also a major force structure buildup paid for by long-term budget increases.

These goals generally were not to be realized on an enduring basis, but DoD budgets grew steadily in real terms to a high of around \$320 billion in FY 1985 (in \$FY88, Total Obligational Authority—TOA). That figure represents a level of spending of almost 55 percent above the budget of FY79, the year before sustained real growth began. This buildup was unique not only in its size but in its staying power: Real budget growth lasted for six consecutive years, an unprecedented record in experience since World War II.

The FY86 defense budget marked the beginning of a period of gradual real DoD budget decline. Depending on the outcome of the FY90 budget process, the budget will have declined by about 13 percent in real terms since its FY85 peak. Put another way, DoD's budget authority has been frozen in nominal terms (it has therefore been eroding

at roughly the rate of inflation). Initially, efforts were made to resist such downward movement. As recently as January 1989, for instance, Secretary Carlucci's budget request called for 2 percent real growth per year over a five-year planning period.

But since the April 1989 budget summit, the Bush administration's defense budget policy has formally and fully acknowledged changing fiscal and political realities, and further real decline seems not unlikely for at least a while. The key question now is when this trend might be arrested and how far down it may go until then. Given the contrast between these new financial realities and the previous expectations of defense planners, substantial accommodation by the military will be necessary. Many of the service plans for posture expansion conceived in the early 1980s, along with several major force structure modernization initiatives, have already been canceled.

That, to many, is "the bad news." In some sense, the corresponding "good news" is that the defense budget was elevated to such a high baseline during the Reagan administration that even after half a decade of real decline, the budget (in terms of authority) today is still at a level equal to those statistically high budgets prevailing during the peak Vietnam War years, more than a third higher than those of the late 1970s. Nonetheless, even barring extensive continued downward movement in the budget, recent plans and priorities must be revised substantially. At the least, contingent preparations for potentially great shifts in the level and mix of resources for defense should be considered in light of both a possible budget crunch and changes in the global security environment.

During most of the 1980s there was a lack of controversy characterizing many issues that in other circumstances might well have invited more intense political scrutiny. If historical experience is any guide, the explanation for this phenomenon is simple: During the early Reagan buildup, financial resources were sufficiently plentiful that many otherwise difficult tradeoffs did not have to be worked out in as much detail as they otherwise might have been. Subsequently, despite budget erosion, the baseline from which that decline has been taking place has been sufficiently high that we have not yet had to confront really painful choices. But several issues are now beginning to stimulate controversy, including disputes over the ultimate size of the DoD top-line; the spending mix among missions, regions, and services; the balance between maintenance of in-hand capabilities and long-term development options; the role of arms control in furthering national and coalitional aims; and the proper balancing of resource commitments among the members of the formal and other security coalitions to which the United States belongs.

Resolving such complex questions will probably be enormously difficult. Many of the key issues in this debate have been eclipsed by political considerations that remain quite vague. This has precluded much detailed review of the quantitative side of the budget planning question. Yet a great intensification in this debate probably is inevitable, particularly given the prospects for the FY91 budget development process.

It is widely agreed that budgets up through that of FY90 have not really come to grips with some of the more difficult problems looming before the Defense Department's resource planners. So far, the FY90 budget is seemingly consistent with the requirements of the Gramm-Rudman-Hollings (GRH) deficit reduction scheme, but some say that this is on account of bookkeeping gimmicks and stop-gap measures. In FY91, it will be necessary to achieve a federal deficit limit of not more than \$64 billion (in current dollars). Barring some kind of economic miracle, a decision to raise taxes, or some unexpected development on the international scene, spending goals cannot be met without major DoD program tradeoffs, probably to involve substantial pressures on force structure end strengths, customary U.S. deployment policies, and major procurement initiatives.

That said, some of the leading findings from the subsequent chapters are as follows:

- In absolute terms, since the Korean War, the DoD's top-line has reliably reflected the situation prevailing in the world. Whatever the specific determinants of increases and downturns, DoD top-lines are a cyclical, not steady-state, proposition.
- Since the mid-1960s, defense spending has faced increasing competition from the nondefense sector of the federal budget. Unless there are substantial changes in existing tax and other legislation, the current deficit situation, and other major areas, this competition can be expected to grow more intense in the years ahead.
- There is little we can do to control much nondefense federal spending. Moreover, for structural and other reasons, this uncontrollable figure will grow steadily barring major policy changes.
- Measured in several ways, the defense burden on the American economy and its people has declined steadily over time. Given the growth in the economy overall, not even the unprecedented Reagan-era buildup perturbed various defense burden indices.

- The controllable parts of the nondefense federal budget—for instance, certain spending for education, health, public assistance, and various other social safety net programs that were restrained during the Reagan years—may grow in the 1990s, given current popular perceptions about the need for the federal government to deal with new issues in health insurance availability for the poor and elderly, social well-being, the environment, spending on national infrastructure and research, and so on.
- Based on recent historical experience, a fairly natural level of national defense spending over the long run is a figure of \$240–260 billion and a ratio of defense to federal spending of 25–29 percent.
- We can expect difficult tradeoffs in generating serious outlay reductions required to meet legally mandated federal budget deficit targets. We will have to determine some optimum mix of hardware and fast money cuts not only to yield the necessary cuts now and in the future, but also to balance near-term preparedness and long-term modernization and other options.
- Over the long term, the defense budget growth profile is modestly upward. The historical pattern shows defense budgets tend to jump up over short intervals, only to decline over somewhat longer periods. Clearly, we reside in such a creep-down phase right now. History provides few insights into the probable duration of such declines—not untypically, what ends a process of erosion is an explicit external challenge (an unpredictable matter) or the perception that defense capabilities have eroded to a dangerous degree (in which case, an epoch of national security spending creep-down might be expected to last for some time).
- A considerable gap exists between recent and current five-year defense plan (FYDP) expectations and what the budget is likely to yield. It can take years to reorient such expectations, and cutting FYDPs that envision more than just modest (or even no) real growth brings with it a risk of serious inefficiencies (e.g., program cost escalation due to program size reduction and acquisition stretchouts).

- Ideally, to assure a coherent, efficient, and effective defense program, it is desirable to avoid substantial modification of that program by Congress if that leads to uneconomical acquisition, irrational choices (such as failure to close unneeded military installations), failure to exploit economizing opportunities (for instance, by multi-year procurement authorizations for weapons), and the like.
- The Defense budget has been stable internally. (So too are certain key relationships between large-scale budget categories and posture entities.)
- Over time, spending by appropriation titles shows stable patterns. Spending on RDT&E amounts to a quite consistent 10 percent of the total budget. Spending on O&M and military personnel has generally been about equal (in the 27–29 percent range), save for the effects of retired pay.
- Procurement benefits disproportionately with significant budget increases, and suffers the most during extended declines. Procurement will probably be the premier battleground of any budgetary conflict of the early 1990s.
- There are certain problems with defense overhead accounts. Some of these have gone down over time in absolute and proportional terms (such as MFP IX—i.e., defense-wide administration).<sup>1</sup> But others, including military entitlements and benefits, are moving steadily upward. They will compete with other defense accounts that are more directly involved with putting posture on line.
- The stable budget mix by service seems to be about one-fourth of TOA for Army, and about one-third each for the Navy and USAF. The Navy has been the most stable over recent years, probably because it is the most diversified service. The amount of money to be spent on defense-wide functions and defense agencies has generally grown steadily, and U.S. policy for these accounts should be evaluated in light of other requirements.
- Natural spending levels (and proportional amounts) for the major combat MFPs is as follows: I (strategic forces), \$20–25 billion (about 8–10 percent); II (general purpose forces), \$90–105 billion (35–40 percent); IV (strategic mobility), \$4 billion (2 percent); and V (reserves), \$12–15 billion (5 percent). The growth of the Guard and Reserve MFP, requirements for strategic

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<sup>1</sup>These Major Force Program (MFP) accounting entities are described in App. A.

mobility, and the new Special Operations MFP (MFP XI) all appear to be growing in budgetary as well as strategic importance.

- Support MFPs, like support appropriations titles, increase in proportional terms in bad budget years. Barring a really precipitous total decline, a logical target for the support MFPs is probably in the neighborhood of \$70-75 billion, with the great majority going to MFPs VII and VIII in roughly equal proportions (although MFP VIII has been growing relative to MFP VII in recent years).

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## CONTENTS

PREFACE .....	iii
SUMMARY .....	v
ACKNOWLEDGMENTS .....	xi
FIGURES .....	xv
TABLES .....	xvii
GLOSSARY .....	xix
Section	
I. INTRODUCTION AND GROUND RULES FOR ANALYSIS .....	1
Introductory Notes .....	1
Some Remarks on the Research Approach Followed .....	8
Ways of Viewing Defense Spending .....	10
II. THE U.S. DEFENSE BUDGET IN ITS NATIONAL CONTEXT .....	19
The U.S. Defense Budget, FY46-88: An Overview .....	19
Major Components of the Federal Budget .....	28
Defense Outlays: Economic and Budgetary Aggregates .....	44
Selected per Capita Indicators .....	47
Summary of These Large-Scale Trends .....	50
III. THE HISTORICAL DoD BUDGET .....	52
The DoD Budget: TOA vs. Outlays .....	52
The DoD Budget: Annual Change in TOA and Outlays .....	56
Real Year-to-Year Change in the DoD Top-Line .....	57
Past Defense FYDPs and Actual Budgets .....	60
The Effects of Congressional Action on Defense Budgets .....	65
Defense and the Controllable Federal Budget .....	66
Summary of DoD Top-Line Trends .....	68
IV. THE INTERNAL STRUCTURE OF THE DoD BUDGET .....	70
DoD Budget by Appropriations Title .....	70
Constitution of the Defense Budget by Service .....	85
U.S. Defense Budget by Major Force Program .....	91
Summary of These Internal DoD Trends .....	102
V. CONCLUDING REMARKS .....	104
Appendix	
A. TERMINOLOGY .....	113
B. A BRIEF SURVEY OF HISTORICAL POSTURE TRENDS .....	117
BIBLIOGRAPHY .....	149

## FIGURES

1.	The U.S. defense budget, FY46-88: an overview . . . . .	20
2.	Some major components of the federal budget, FY46-88 . . . . .	29
3.	Composition of federal outlays, FY46-89 . . . . .	36
4.	Federal government totals as a component of GNP, FY52-89 . . . . .	37
5.	Defense and nondefense spending shares of the federal budget, FY47-88 . . . . .	39
6.	Defense outlays: Economic and budgetary aggregates, FY47-88 . . . . .	46
7.	Selected per capita indicators, FY47-88 . . . . .	48
8.	Trends in defense vs. federal nondefense spending per capita, FY47-88 . . . . .	50
9.	The DoD budget: TOA vs. outlays, FY55-88 . . . . .	53
10.	The DoD budget: Annual change in TOA and outlays, FY55-88. . . . .	56
11.	Past defense FYDPs and actual budgets. . . . .	62
12.	The effects of congressional action on defense budgets, FY62-88 . . . . .	66
13.	Defense and the controllable federal budget, FY62-88. . . . .	67
14.	DoD budget by appropriations title, FY55-88. . . . .	71
15.	DoD budget by appropriations title, FY55-88. . . . .	75
16.	Investment appropriations titles compared with total DoD TOA, FY55-88 . . . . .	77
17.	The volatility of procurement compared with the best of DoD, FY62-88. . . . .	79
18.	Relative year-to-year dynamism of procurement vs. DoD's top-line, FY63-88. . . . .	80
19.	Service procurement budgets, FY62-88. . . . .	82
20.	Constitution of defense budget by service, FY46-88 . . . . .	85
21.	Service shares of total defense spending, FY46-88 . . . . .	88
22.	"Competitive" service shares of defense budget, FY48-88 . . . . .	89
23.	U.S. defense budget by MFP, FY47-88, TOA . . . . .	93
24.	MFPs as a share of DoD budget, FY46-88. . . . .	97
25.	Trends in Programs I, II, and IV, FY47-88, TOA . . . . .	99
26.	Trends in Programs VII-X, FY47-88 . . . . .	101
B.1.	U.S. active military manpower, 1946-88 . . . . .	120
B.2.	Selected U.S. reserve personnel strength, 1956-88 . . . . .	123
B.3.	U.S. Army active division structure, by type, 1946-88 . . . . .	124
B.4.	U.S. Army, active strength by region, 1946-88. . . . .	127
B.5.	USN force structure, 1948-88 . . . . .	130
B.6.	Constitution of USN combatant fleet, 1948-88 . . . . .	133
B.7.	U.S. tactical Air Force posture, 1948-88 . . . . .	136
B.8.	U.S. strategic offensive forces, 1946-88 . . . . .	141
B.9.	Characteristic modernization of the Triad in cycles . . . . .	142
B.10.	U.S. strategic defensive forces, FY62-88. . . . .	144
B.11.	U.S. strategic airlift profile, FY62-88 . . . . .	147

## TABLES

1.	DoD within the national defense budget, FY88 . . . . .	12
2.	Reconciliation between TOA and B/A for FY88 . . . . .	15
3.	Typical spendout rates for authority by appropriations title . . . . .	16
4.	Difference between authority and spending, FY88 . . . . .	17
5.	National defense outlays, FY83-88. . . . .	18
6.	Average annual values, federal budget entities by epoch . . . . .	33
7.	Average real growth per year in federal budget entities by epoch. . . . .	34
8.	Average proportion of federal budget by entity by epoch . . . . .	37
9.	Cumulative spending on defense and other federal enterprises. . . . .	43
10.	Summary of key aggregates, by epoch. . . . .	47
11.	Summary of trends in annual real budget change over time, FY56-88 . . . . .	57
12.	Profile of real TOA change over time, FY47-89 . . . . .	59
13.	Changing FYDP expectations over time . . . . .	63
14.	FYDP expectations vs. reality . . . . .	64
15.	Range of values for major titles . . . . .	71
16.	Average value of appropriation titles during selected epochs. . . . .	72
17.	Proportional constitution of budget during selected epochs by appropriation title . . . . .	77
18.	Where the "windfall" went: total spending by title . . . . .	83
19.	Average value of service budgets during selected epochs . . . . .	86
20.	Proportional constitution of budget by organization during selected epochs . . . . .	88
21.	Average value for MFP during selected epochs. . . . .	97
22.	Proportional constitution of budget by MFP during selected epochs . . . . .	98
23.	Support MFPs: average values . . . . .	102
B.1.	Selected general purpose force posture objectives compared. . . . .	119
B.2.	Active military personnel levels, by epoch . . . . .	122
B.3.	Selected major Army National Guard and Reserve formations. . . . .	128
B.4.	Acquisition of Navy GPF warships, 1953-87 . . . . .	134
B.5.	Acquisition of USAF tactical aircraft, 1953-87. . . . .	138
B.6.	Trends in U.S. strategic sealift posture, FY64-88 . . . . .	148

## GLOSSARY

AAA	Administration and Associated Activities (MFP IX)
ABM	Anti-Ballistic Missile program
AVF	All-Volunteer Force
ASW	Anti-Submarine Warfare
AWACS	Airborne Warning and Control System
B/A	Budget Authority (formerly New Obligational Authority)
CENTCOM	Central Command (formerly Rapid Deployment Force)
CRAF	Civil Reserve Air Fleet (civilian airlift augmentation plan)
CSM	Central Supply and Maintenance (MFP VII)
CVN	Aircraft Carrier (nuclear propulsion)
DoD	Department of Defense
FEMA	Federal Emergency Management Agency
FY	Fiscal Year (1 October to 30 September, since October 1976, when FY77 began; prior to that was 1 July to 30 June)
FY7T	Transition Quarter (i.e., the period between FY76 and FY77, 1 July 1976 to 30 September 1977 as the meaning of FY was changed to bring Federal budgeting more into synchronization with the Congressional calendar)
FYDP	Five Year Defense Plan
G&R	Guard and Reserve (Army and USAF maintain both National Guard and Reserve forces; Navy and USMC maintain only Navy and Marine Reserves)
GDP	Gross Domestic Product
GNP	Gross National Product
GPF	General Purpose Forces (generic term, or MFP II)
GRH	Gramm-Rudman-Hollings II (that is, P.L. 93-177, "The Balanced Budget and Emergency Deficit Control Act," as amended)
GSA	General Services Administration
HUD	Department of Housing and Urban Development
I&C	Intelligence and Communications (MFP III)
JCS	Joint Chiefs of Staff
JSOP	Joint Strategic Objectives Plan (old name for JSPD)
JSPD	Joint Strategic Planning Document
MEF	Marine Expeditionary Force (formerly Marine Amphibious Force), a USMC division-wing team
MFP	Major Force Program in PPBS budget format
MilCon	Military Construction
MilPers	Military Personnel
NSR	National Security Review
O&M	Operations and Maintenance
OJCS	Office of the Joint Chiefs of Staff
OMB	Office of Management and Budget

OPTEMPO	Operational Tempo
OSD	Office of the Secretary of Defense
P.L.	Public Law
PPBS	Planning, Programming, and Budgeting System (sometimes now referred to as PPBES, where E stands for Execution)
RDT&E	Research, Development, Test, and Evaluation
SACEUR	Supreme Allied Commander, Europe
SCN	Shipbuilding and Conversion, Navy
SDI	Strategic Defense Initiative
SNDV	Strategic Nuclear Delivery Vehicle
SNF	Strategic Nuclear Forces (generic term, or MFP I)
SOF	Special Operations Forces (new MFP XI)
SOON	Support of Other Nations (MFP X)
SWA	Southwest Asia
TFW	Tactical Fighter Wing
TMOP	Training, Medical, and Other Personnel (MFP VIII)
TOA	Total Obligational Authority
UCP	Unified Command Plan
USG	United States Government
XX	Division (basic major unit of Army/Marine force structure)

## I. INTRODUCTION AND GROUND RULES FOR ANALYSIS

### INTRODUCTORY NOTES

Selected results of an extended review of national and DoD budget trends are presented in a series of graphical and tabular portrayals, accompanied by short discussions. The goal is primarily to describe what has happened, and not to explain, except in passing, *why* it happened. Nor do I speculate on what may transpire in the future. Even so, there is often far more to each story than can be recounted in a brief representation; for more detailed discussion, therefore, see the other documents in this series.<sup>1</sup>

The planning environment since World War II has confronted the U.S. national security establishment with several quandaries: how to manage defense coalitions in peacetime and war alike, cope with revolutionary new technologies, deter and engage in conflicts across a very broad spectrum of contingencies ranging from various modes of low-intensity conflict (and such nonmilitary functions as the maintenance of U.S. military peacetime "presence") all the way up to all-out warfare. Related to this resume of requirements is the matter of determining how much we should spend to preserve various national security options. Maintaining such a large and diverse peacetime posture—and supplying the budgets necessary for its maintenance—represents quite a departure from certain long-standing American traditions.

For most of its history, the United States was able to await the materialization of explicit military threats at no intolerable cost in terms of national security, mobilizing only as the particulars of a scenario became fairly clear. Under such circumstances, defense and budget planning tasks are straightforward, inasmuch as requirements for standing peacetime posture are relaxed and because insight into the nature of emerging contingencies permits the efficient generation of resources. In many ways, then, American defense planners faced rather simpler problems than did their European counterparts, anyway until the middle of this century.<sup>2</sup>

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<sup>1</sup>Lewis, 1988, 1989.

<sup>2</sup>As one commentator has noted: "When the Founding Fathers assembled in Philadelphia to draft the Constitution of the United States, the Nation was small and weak. . . . Under these conditions, it is not surprising that our national security objectives were very modest, namely to avoid foreign entanglements, to defend the land frontiers

Of course, a very different situation has existed since the early 1950s. After World War II, it became clear that if we were to defend ourselves and the coalitions to which we belonged in peacetime, the basic tenets of U.S. defense planning had to be revamped. No longer would a tradition of wait and respond suffice; a national policy of (at best) peacetime semi-preparedness would be a sure prescription for catastrophe. No longer could the United States count on friends, allies, or luck to hold the ring—by a Miracle of the Marne, Battle of Britain, or resolute defense of the Pusan perimeter—while we mobilized for total war from a secure rear area. If nothing else, the new problem of nuclear deterrence demanded we meet more exacting standards of vigilance. In the general purpose forces arena, the shock of the North Korean invasion in June 1950 and the prospect of an invasion in Europe by a substantially unmobilized Red Army drove home the point that, like it or not, the United States should consider itself squarely in the front rank of the free world's peacetime line of defense.

One of the most burdensome, perplexing, and novel features of the modern security environment confronting the United States has been the peacetime need to prepare for possibly severe contingencies relying on in-hand defense posture. There has been a high price tag attached to this new strategic environment. Since declaring its independence from Britain, the United States has spent almost \$13.5 trillion (in \$FY88) to meet a broad array of national security responsibilities by direct means. But in spite of the long period over which these funds were spent, and despite the great diversity of our military enterprises over that time, more than half of this total amount has been spent since the cessation of hostilities in Korea in 1953.<sup>3</sup> Should the dominant phenomena of the past quarter century persist (with defense spending running at a rate of \$500-\$600,000 per minute), a budget analyst born today would probably witness a doubling of the \$13.5 trillion figure before he retires.

Since peace talks were concluded at Panmunjom in 1953, the United States has annually committed an average of about 7.5 percent of its GNP toward its national

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against the Indians and our neighbors in Canada and Florida, and to maintain internal security." See Hitch, 1965, Ch. I. Together with the Monroe Doctrine—supported militarily by the British Navy—general U.S. tradition, domestic priorities, and the experience of the Civil War, this sentiment did not even begin to abate until the very late 1800s. As late as 1939, many Americans actively sought a policy of neutrality with regard to the confrontational European states.

<sup>3</sup>Of total U.S. defense spending, approximately \$950 billion can be attributed to the direct, incremental costs of two mid-level contingencies in which the United States has been engaged, the Korean and Vietnam Wars.

defense.<sup>4</sup> This percentage is large, although it is now smaller than the percentage of GNP spent on education, health, or entitlements generally.<sup>5</sup>

Defense budgets have undoubtedly played a critical role in the evolution of U.S. strategy over time, not to mention their role in shaping posture, capabilities, etc. It is impossible, of course, to relate deterrence to any level of spending, although the JCS attempt to do this during their Joint Strategic planning process. Yet in the best of circumstances, the defense budgets likely to be available amount to only about two-thirds of what is actually required to buy the JSPD "prudent risk" force structure.<sup>6</sup>

Defense planning becomes, in its fundamental essence, a task of deciding where shortages among the competing enterprises in our defense establishment can be best afforded. Most defense planners agree with the statement of then-Secretary of Defense Robert McNamara that we should not make "military strategy the stepchild of a

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<sup>4</sup>Since the end of the direct U.S. combat commitment to the Vietnam War, average spending for national defense has amounted to about 5.7 percent of GNP.

<sup>5</sup>Contrary to the image held by many in Congress and the public at large, many other discrete components of the economy as a whole are larger than defense. For instance, national health-related expenditures of all types in FY88 were about three-quarters higher than defense spending in that year; education spending of all kinds first exceeded defense spending in FY88, and continues to grow, while defense declines; social welfare spending of all kinds in FY88 approached three times the level of defense spending then. There are some areas of overlap within categories here; certain education, entitlements, and health programs can all be found in the defense budget. See *Statistical Abstract of the United States, 1989*.

<sup>6</sup>The document that describes force needs has until recently taken the form of a Joint Strategic Planning Document (JSPD); it was formerly the JSOP—Joint Strategic Objectives Plan. The largest-ever Five Year Plans (of 1983) still only amounted to two-thirds of perceived JCS needs, which explains why these plans are not extraordinarily useful practical planning documents. Indeed, the JSOP used to be sarcastically referred to as the Pearl Harbor file: In the event of some future military debacle, the file could be produced, it was said, as proof that the military had done its job and requested adequate forces, which were then not bought, leading to disaster, etc. But the budgets required to maintain these forces involve dollar figures that are reported to be substantially higher than those that have ever been realized historically (save during the height of World War II). The JCS numbers are not published, but in 1981 some sources did leak data to the effect that, even with an all-time-high five-year defense budget request by the administration of \$1.5 trillion (in current dollars), the JCS still considered the Reagan program to be "underfunded for those five years by a whopping \$750 billion" in the sense that the forces that would be acquired and maintained by that sum would still fall short of JCS estimates of requirements. See *Armed Forces Journal International*, August 1982, p. 38. See also footnote 1, p. iii.



predetermined budget."<sup>7</sup> In introducing the PPBS system to reconcile better U.S. security requirements with capabilities, the Kennedy administration was praised for its rejection of management by budget ceilings, as had been the practice especially by the Eisenhower administration. The budget guidance issued by Secretary McNamara ordered the DoD and services to "(1) Develop the force structure necessary to our military requirements without regard to arbitrary or predetermined budget ceilings; (2) having determined that force structure . . . procure and operate it at the lowest possible cost."<sup>8</sup> Although this approach makes much logical sense, it simply does not square with the often profound effects that resource constraints have had on our defense preparations of all types. One of the chief problems inherent in the way that the budgeting system functions, of course, is that a posture designed according to a JSPD type of blueprint, and then down-sized to reflect budgetary realities, does not necessarily lead to the same kind of posture that we would buy if we set out to design a force structure constrained from the start by resources.<sup>9</sup>

### **Lessons from the Historical Record**

A survey of the history of the Defense budget—as a component of the economy and government, in its own right, and as the sum of its constituent parts—indicates several important trends and processes. A full accounting for the factors behind them is well beyond the scope of this Note, but the experienced reader will recognize that the forces accounting for key trends over time are neither capricious nor the outcome of short-term decisions frequently reassessed. Much of the defense program is the result of very long-term decisions and factors, many of which are beyond the immediate control of defense managers. Barring truly radical developments—the outbreak of a major war, for instance—the forces at work on the program should continue to play a role, often in somewhat predictable ways. The planner looking to the future ignores these phenomena at his peril. Our ability to change either the size or internal mix of the defense effort

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<sup>7</sup>Quoted in Moulton, 1973, p. 49.

<sup>8</sup>Testimony of McNamara, 1962, p. 3162.

<sup>9</sup>Or put somewhat crudely, if we plan on a posture (or system, or what-have-you) costing \$X, and only two-thirds of \$X are ultimately available, we might have been better off had we planned on an altogether different budget and posture plan Y, etc.

similarly is constrained over time. The whole process is rather like steering a large ship; decisions about course changes can take a long time to translate into course corrections.<sup>10</sup>

What remains in any case is quite a complex picture. The defense budget is not, as some think, the product of a set of decisions made on an annual basis, nor is it the immutable result of uncontrollable forces. Our ability to control the shape and evolution of the program as a whole must recognize the role played by many constraints and other factors that we may only partially control. That being the case, what factors may influence the forms our budgetary future may take and how can this transition to the future be best managed?

It is my belief that analysis of the influences and constraints that have led to the present situation can be very helpful in identifying key factors likely to shape our program in the long run, hence the analysis of longitudinal trends presented here. Uncounted words have been written to describe the history of the processes that have motivated, inhibited, and otherwise influenced our defense expenditures over time. Much analysis has been directed toward the study of the many issues and vicissitudes associated with the maintenance of both an effective and efficient defense establishment through thick and thin, and in war and peace alike. Similarly, a vast effort has been devoted to the better analysis and management of national security choices.

But as any experienced planner knows, no amount of analysis or research could ever resolve deep-seated differences of opinion about many critical matters. Nor are any techniques likely to be devised to reconcile the answers to any of these questions in a reasonable fashion. Such theories would, of course, depend on fundamental intangibles. Much about national security planning remains unclear, contradictory, or unverifiable. Many decisions to adopt one rather than another policy option ultimately depend on

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<sup>10</sup>It is often alleged that the defense effort is hopelessly hamstrung by tradition, bureaucratic inertia, and parochial interests, and that such factors constrain our ability to bring defense capabilities and resources into harmony. No doubt these and other forces do exist, and often play major roles, but their net effect is probably overstated. None of this should be taken as evidence that short-term, even decisive, changes in U.S. defense posture are not possible. Take, for a case in point, the history of USAF tactical forces. Five-year projections made in the early 1960s envisioned a late 1960s active tactical air force (TAF) consisting mainly of F-105s and F-111s (aircraft optimized for long-range ground attack, particularly with nuclear weapons). But a decade later, about two-thirds of the TAF posture consisted of multirole F-4s, with A-7s making up another one-sixth of the TAF. Thus, not only did the force mix and hence the implied set of USAF doctrines and missions differ from plans, the evolving TAF posture consisted largely of aircraft not initially designed by the Air Force.

assumptions about the nature of the contingencies that should be used in planning, determinations of acceptable levels of risk, or perceptions that marginal returns on a given investment have fallen below a proper threshold. Moreover, we cannot ignore the effects political forces inject into rational planning activities. Equally important, we make many decisions in a competitive, international setting, and our ability to make the behavior of others conform with our own plans and desires is limited and hard to predict.<sup>11</sup>

The assumptions that may guide the design and selection of policies, strategies, force structures, etc. over the next few decades, or even the next few years, can be only partially characterized today. In defense planning, even the most prudent policies may not guarantee success. The funding committed may be inadequate to head off future challenges or disasters, bad luck may intervene, and even fully adequate preparations may not deter those who, for whatever reason, seek to further their own goals in hostile fashion.

Yet there is much that can be said about the future national security context, including the budgets available to underwrite our policies in the future. Some things about the future are quite well determined. For instance, we are reasonably confident that we will bear a certain burden for, say, retired pay, in a future fiscal year.<sup>12</sup> We can also estimate what the inevitable decline in the number of suitable 18-year-old youths could mean for military manpower management. We are now embarked on several programs and plans that may have very substantial budgetary as well as strategic

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<sup>11</sup>Some planners have prescribed what might be called top-down approaches to national defense planning of all types, including resource planning. Based on a statement of national goals, it is said, we should be able to define the strategies required to meet these goals and specify the requisite postures and budgets needed to maintain credible deterrent and appropriate warfighting capabilities. There is much of theoretical merit to this approach. However, it suffers certain deficiencies in a practical sense. The budget, among other things, simply does not permit us to buy a reasonable risk posture short of mobilization. Another factor foiling implementation of the ideal model is that the availability of resources is often highly uncertain, even over the short run. The best we can probably do is avoid the gross disconnection of the different components of the planning process, heading off situations in which the generally top-to-downward flow of the process from goals to means disappears or, worse, is reversed. (Referring to this latter situation, one former DoD official noted about U.S. nuclear strategy that "U.S. targeting policy is based on the forces we have." See William Perry, 1980, pp. 24-25.) For a discussion of the consequences of disconnection in the planning process generally, see Lewis, 1985.

<sup>12</sup>In fact, depending on how it is defined, spending by DoD on predetermined entitlements (retired pay, dependent support, etc.) now runs to more than one-tenth of the defense effort, and this fraction is growing.

implications for years to come. In particular, force structure tends to change only slowly, although in theory things can be made to happen quickly.<sup>13</sup>

Although we retain considerable freedom of choice, much can be practicably asserted about the future national security environment on the basis of a current snapshot of our situation when it comes to the programs we have planned, begun, and are otherwise in possession of. Moreover, the paths we have followed over time have been chosen for good reasons; and barring persuasive evidence to the contrary, we should expect at least some of the forces that have shaped our posture and budgets in the path to continue to play a key role in the future. An excellent source of information for any forecast of the near and mid-term defense setting can therefore be found in historical trends and developments, especially when it comes to defense budgets.

The basic proposition on which this research is predicated is that the past is very much prologue. In fact, my research strongly suggests that over time there has been substantial convergence in the enterprises that constitute the total U.S. defense effort.<sup>14</sup>

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<sup>13</sup>One example can be found in two improved *Nimitz* class supercarriers now nearing completion. These ships, ordered in the FY83 budget, can be expected to remain active components of the U.S. force structure well into the third decade of the twenty-first century. To give a sense for the scale of time involved in modern weapons acquisition, if construction of the lead ship *Nimitz* had been ordered at the time of the Nazi invasion of Poland, this carrier would have gone on active duty a couple of years after the atomic bombing of Nagasaki. Including development times, the situation is more alarming yet: A recent Navy study of the acquisition process found that developing a new weapon, from drawing-board to Initial Operational Capability (IOC) took some 23-1/2 years. See "Shocking Findings of Navy Study," *Electronic Combat Report*, 21 April 1989, p. 13. In contrast, the objective acquisition interval was put at 12 years. Overall, we see a substantial greying of the U.S. posture as a whole, as weapons not only take longer to design and acquire, but remain in the posture longer. Average age statistics bear this out, as does much anecdotal evidence. One leading case in point is the endurance of the SAC bomber and tanker force (B-52/KC-135) procured before 1962. Much of this force continues to soldier on, albeit in substantially reconfigured form.

<sup>14</sup>Convergence refers to a tendency within some constituent part of the total defense planning enterprise to seek out some natural level of activity, certain posture constants, or what have you. For instance, planners have a proclivity to design and then adhere to force levels that remain constant over time (600 ships, a certain relationship among types of Army battalions within the total Army posture, a given day-to-day strategic force on alert, etc.). There are also surprisingly consistent ratios over time in the relative and absolute costs of large-scale portions of the defense effort. It is even possible to identify cases of steady convergence in our thinking about operational employment strategy. Any change in the day-to-day process of some planning avocation, to be effective, must move an ever-larger strategic planning establishment an ever-more modest distance from a body of beliefs that have tended to become more and more solidly emplaced over time. Similarly, individual programs have reflected similar kinds of constancy over time. For

This convergence is primarily a consequence of financial necessity. This statement may seem counterintuitive given the occasionally profound weather changes in defense planning that occur every so often (the switch, in 1973, to an All-Volunteer Force, or the 1983 introduction of an ambitious Strategic Defense Initiative being two classic recent cases in point). Yet in spite of the odd dramatic development, the defense program tends to try to recover into historically consistent ranges. There are many complex aspects of this process, but they are beyond the scope of this Note.

### **SOME REMARKS ON THE RESEARCH APPROACH FOLLOWED**

This project used only generally available, unclassified data. It is true that certain more detailed, but publicly unavailable, data could be consulted. However, any additional precision or detail to be gained from using such material would be slight. Although every effort was made to provide a comprehensive statistical portrayal in each case, such data were not available in every case. Chief among the many causes are the limitations of source materials, periodic changes in accounting conventions, and that much budget data and methodology before 1961 were not as well developed and assessed as is the case today. In general, I have standardized accounting categories to conform with currently valid definitions when changes exist.

The purpose of this document and its companions is to concentrate on the evolution of large scale *trends*. The specific budgetary consequences of certain admittedly important discrete events and developments are of less interest. In any event, the nature of posture and budget developments at a macroscopic level is such that large-scale trends tend to dominate individual events, particularly recently.

Unless noted, data are expressed in constant FY88 dollars (one of these being about 7 percent less valuable than a FY86 dollar, and about 7 percent more valuable than a FY90 one). I exclude the Transition Quarter (FY7T), July 1, 1976 through September 30, 1976.<sup>15</sup> No special allowance is made for classified programs, some of which may

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example, modern strategic bomber procurement programs have, since the late 1950s, envisioned total procurement runs of about 240 aircraft (the total number of the most modern B-52s—the G and H models). Thus, proposed buys for the B-58, B-70, FB-111A, B-1A, and now the B-1B/B-2 mix have all curiously wound up being around 240 airplanes each.

<sup>15</sup>This is when the fiscal year was moved, according to P.L. 93-344 (The Congressional Budget and Impoundment Control Act of 1974), to bring the federal fiscal year more into harmony with the annual Congressional budget schedule.

have been disguised by their location in various unlikely accounting categories.<sup>16</sup> And I have applied to all data a composite DoD top-line price deflator, although more precise category-by-category deflators are possible.<sup>17</sup>

A list of the sources consulted appears as App. A, as do certain technical remarks on accounting entities. Appendix B provides a brief overview of posture trends throughout the period reviewed for the interested reader; one will see that there is a growing degree of stability (convergence) in portions of the defense budget over time, but it is even more striking how consistent the overall posture has been despite major shifts in strategic foundations, threats, external contingencies, and the like.<sup>18</sup>

Given the sensitivity of defense spending as a national issue, the degree of alleged micro-management of the defense effort as a whole, and the amount of effort going into defense management, it may come as a surprise that data on defense spending and related matters should be subject to any uncertainty or doubt at all. As a matter of fact, the U.S. defense effort as a whole is so large and complex, and the need to respond to changing circumstances so great, that a simple, comprehensive accounting representation for defense spending is not a realistic proposition. The more we aggregate our findings and the more we try to draw macro-scale lessons from trends and other data, the more we risk suppressing crucial detail on why trends have changed. It is a necessary compromise in the present study, then, that many points of substantial historical importance must be passed over in the interest of keeping a proper perspective on the trends evaluated here.

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<sup>16</sup>Despite the allegedly high cost of these through most of the 1980s. See Morrison, 1986, pp. 492-498; Lewis, 1988; and Kaplan, 1989, p. 10.

<sup>17</sup>For a detailed account of category-by-category inflation factors, see the annual *National Defense Budget Estimates*, Office of the Assistant Secretary of Defense (Comptroller).

<sup>18</sup>Noteworthy exceptions exist, but in most cases there are good explanations behind them. For instance, as the Vietnam War wound down, the size of the Navy's general purpose fleet was reduced from 894 ships in 1967 to 467 ships in 1976. But this mainly reflects the mass retirement of the World War II legacy of ships then reaching the end of their service lives and the decision by Navy leadership at the time to retire obsolescing ships in the interests of new programs starved for resources by the diversion of funds to Vietnam operations. If we consider postwar shipping construction, we find that, over the past quarter century anyway, the posture has been far more consistent. Similarly, the modern strategic Triad (of B-1, MX, and Trident) comprises fewer delivery vehicles than the force it is to replace (B-52, Minuteman, and Polaris). In terms of deliverable warheads, the figures are much more consistent. If one can look beyond simple-minded bean counts to slightly more representative measures of posture and capabilities, there is a remarkable extent of convergence in U.S. posture goals over time.

Over the years, many efforts have been made to refine accounting techniques and conventions, but for both technical and political reasons, these have failed to become widely accepted.<sup>19</sup> The problem of using available detail beyond an admittedly coarse point just becomes too intractable a proposition. Naturally, this has some important political repercussions.<sup>20</sup> But these remain limitations with which we must live. Even so, much can be usefully said, using the data and means at our disposal, that should be of great interest to participants in the current debate.<sup>21</sup>

### WAYS OF VIEWING DEFENSE SPENDING

The budget analyst knows that definitional and other problems can greatly complicate analysis of U.S. national security spending patterns. First and most important is the question of what is really meant by defense spending. This Note refers to defense as a budget entity in one of two different ways, and further differentiates between two accounting conventions.

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<sup>19</sup>My attempt to describe the priority accorded different geographic theaters appears below. Other attempts to portray the defense budget include the use of the four "pillars" of defense as resource categories (these being force structure, modernization, readiness, and sustainability); the Force and Activities Display (FAD), which sought to break out spending in functional detail (both Army and Marine divisions would be counted as ground force costs, and so on); certain service budget categorizations; and so on. For examples of such alternative budgeting methods, see *FY1980 Department of Defense Budget Display by Mission Category (FAD)*, in compliance with P.L. 93-344, OSD, January 22, 1979; Trost, 1988, pp. 630-631. Note that this FAD is not the same entity as the widely used current "Force and Activity Designator" bearing the same acronym.

<sup>20</sup>For instance, certain services have been accused over time of charging major weapons modifications bills to their O&M accounts to hold down apparent procurement budgets. In the case of efforts to clarify regional budgetary emphasis, three major factors stand in the way of a more determined effort at accounting precision: (1) improved clarification is not a priority to some, nor are others interested in modifying the current situation with its ambiguous resource allocation formulae, (2) the phenomenal ambiguity that exists even if a genuine effort were to be made to refine a regional budgeting scheme; and (3) nuclear forces, special forces, some lift and logistics forces, and much of the Navy tend to view the globe as one integrated seamless theater, not in regional terms.

<sup>21</sup>Ambiguity, complexity, etc. are not limited to the U.S. defense establishment. The Soviets, after having promised to reveal their military budget in detail, missed announced deadlines for the publication of such data. Apparently, "even top officials, like (then-) Chief of the General Staff Marshal S. F. Akhromayev, have admitted that years of neglect are making calculating the budget a monumental task." See "Soviet Reveals Partial Defense Budget," *Soviet Aerospace*, November 7, 1988, p. 3.

The *National Defense* account, as it appears in the federal Unified Budget,<sup>22</sup> consists of the budget devoted to DoD *military* functions, plus certain other activities related to national defense as may be found in other departments. Alternatively, many commentators refer to spending by the executive Department of Defense. Such are the figures usually used in internal DoD documentation of the budget. These data provide a slightly different index of the scale of the total defense effort at any point in time. Nonetheless, they are more widely used in the DoD internal planning process.<sup>23</sup> Because of its consistency over time, not to mention the general availability of data in these terms, this latter (DoD) statistic is widely used for evaluation of the internal constitution and emphasis of the national security effort over time; it is therefore used in Secs. III and IV. In contrast, the more inclusive all-government national defense account provides a slightly more representative accounting for national defense activities as a component of the economy as a whole, and so it is generally used in Sec. II.

Table 1 illustrates the difference between budget authority for national defense and the total value of the Defense Department's budget for FY 1988 (based on the administration's FY88 budget request). Thus, in FY88, DoD's net requested budget authority ran to some \$283.2 billion. But authority for various other national defense

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<sup>22</sup>National defense in this system differs slightly from the National Defense entry in the National Income and Product Accounts (purchases of goods and services). In FY88, the latter is \$289.1 billion, the former \$285.4 billion. The difference is that the NIPA measure does not include certain transfer payments, grants, interest payments, subsidies, etc. Before the restructuring of the DoD retired pay account, the difference between these two entities was substantially greater. Of course, the majority of federal government expenditures in any FY are transfer payments. Hence, DoD has recently accounted for 70-75 percent of all federal purchases of goods and services.

<sup>23</sup>Depending on the specifics, included in such departmental indices may also be certain accounts that cannot be said to enhance present national security per se, including retired pay, support of rifle practice, civil works of the Corps of Engineers, etc. Neither of these categories includes some national security-related expenditures, including but not limited to earmarked foreign aid, foreign military sales credits, etc. The 051—military functions of DoD—account does not include certain nonmilitary funds—e.g., those for military assistance, Veteran's benefits, and the payment of interest on that portion of the public debt caused by past wars. It is hard to figure out this total, particularly the national debt's contribution to it, but it runs in excess of \$40 billion. However, as William Kaufmann notes, "if the main purpose of an analysis is to understand current national security needs and costs, and to let bygones be bygones, focusing primarily on the defense (051) and national defense (050) accounts makes sense." Kaufmann indicates that military assistance has been, for 15 years or more, intended not to substitute for U.S. capabilities as much as it has been to "winning friends and influencing people." See Kaufmann, 1986, pp. 7-8.



Table 1  
DoD WITHIN THE NATIONAL DEFENSE BUDGET, FY88  
(Billions of \$FY88)

Department of Defense (051) Budget Authority	
The DoD Bill	
Military Personnel (including Retired Pay)	76.1
Operations and Maintenance	80.7
Procurement	81.0
Research and Development	36.7
Special Foreign Currency	(a)
Revolving and Management Funds	0.8
Total	275.4
The Military Construction Bill	
Military Construction	5.4
Family Housing	3.1
Total	8.5
Contingencies: Proposed Legislation	(a)
DoD Offsetting Receipts (Net)	(0.7)
051 Total DoD Budget Authority	283.2
Other National Defense Budget Authority	
053 Atomic Energy (Department of Energy)	7.7
054 Treasury/Postal Bill (GSA, stockpiles, etc.)	(a)
054 HUD/Indep Agencies (FEMA, Selective Service)	0.3
054 Dept of Transportation (Ready Reserve Fleet)	(a)
054 Defense Appropriation Act	0.2
Intelligence Community Staff	(a)
CIA Retirement and Disability	0.1
Funds Appropriated to the President	(a)
054 Total, Defense Related	0.5
All National Defense (050)	291.4

<sup>a</sup>Less than \$50 million this FY.

functions amounted to another \$8.3 billion, yielding total national defense authority of \$291.4 billion.

Yet another crucial distinction must be made. That concerns the difference between *authority* to spend—a budget proposed by DoD and then granted by the Congress—and actual spending, or *outlays*. DoD, like other executive departments, develops a budget request; after considering that, Congress *authorizes* and *appropriates* funds; Congress gives DoD permission to exist and to spend (enter into contracts, and so

on).<sup>24</sup> But not all of the money requested for a given fiscal year budget is actually converted into *outlays*—literally checks written—during that fiscal year; on some occasions, indeed, authority may never be converted into outlays, or it may be converted into outlays of a kind other than originally envisioned.<sup>25</sup> The difference between authority and outlays is crucial to the current economic debate.

Authority is measured, in the case of DoD, in one of two ways. First is *Budget Authority* (B/A), the size of the notional "checking account" for a given FY that Congress allows Defense, regardless of the year in which such funds may be converted to outlays.<sup>26</sup> Most B/A is provided by Congress in the form of appropriations (and reappropriations) that can be changed by transfers to or from other accounts. Then there is *Total Obligational Authority*, a DoD-specific term describing the value of the direct defense program for a given year regardless of the source of financing. Because most of the funds available for financing the DoD effort are in fact appropriations by Congress, TOA and B/A generally are about the same. They differ to a small degree as a result of the way in which certain DoD revenues (for instance, involving foreign sales, sales of assets, etc.) and some other minor matters are handled in the books (though lately the gap

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<sup>24</sup>The DoD budget process in Congress consists of two steps: authorization and appropriation. An authorization is legislation that establishes, in this case, the DoD (or any related department or agency) for a specified time; identifies its goals and so on; and usually sets a ceiling on allowable activities. Over time, the involvement of the authorization committees (Armed Services Committees) in the details of the Defense program has grown. Once authorized, funds are appropriated, following hearings and evaluations by Appropriations Committees in both houses. An appropriation is a law passed by Congress permitting federal agencies to incur obligations and make payments from the Treasury for specific purposes. In theory, then, the Congressional schedule would involve authorization prior to appropriations. In practice, the two often run at the same time. "Backdoor authority" is authority to spend that does not require an appropriation. Among the most prevalent forms are borrowing authority, contract authority, and entitlements. Congress only controls DoD's authority; it does not appropriate outlays.

<sup>25</sup>Funds for programs or activities may be authorized but not obligated. If funds are not obligated within a set period of time, they typically revert to the Treasury. Funds may also be changed in quantity or their intended purpose once authorized (and even once obligated, but this happens much less often in practice) by reprogramming, sequestration, impoundment (either by deferral or rescission), etc. Congressional approval for most such budget adjustments is necessary. Note that under P.L. 99-177 (GRH), Congress is forbidden to rescind obligated authority.

<sup>26</sup>Budget authority is the authority, granted by Congress, to enter into obligations that will result in federal outlays. There are three basic forms: appropriations, contract authority, and borrowing authority. B/A, typically, is not open-ended. It expires automatically if not obligated within a given period of time.

between TOA and B/A has been larger than usual, because of the greater use of transfers to finance certain programs, particularly in Military Personnel accounts).<sup>27</sup>

In general, then—that is, from our macroscopic view—TOA and B/A are usually about the same, particularly at the level of aggregation used here. Where differences may be substantial, they are indicated. From time to time, changes in accounting procedure lead to modest adjustments that produce differences between TOA and B/A figures. Recently, for instance, the gap between TOA and B/A has been greater than usual because of a Congressional decision to finance more programs by transferring funds, particularly in Military Personnel accounts. But, again, from a highly aggregated perspective, the differences are exceedingly modest.

Table 2 shows the difference in TOA and Budget Authority for fiscal year 1988. The TOA total (\$289 billion) is adjusted (for transfers, lapses, receipts, foreign currency adjustments, contributions to NATO infrastructure, and other transactions)<sup>28</sup> by a total of almost \$6 billion, yielding a Budget Authority figure of about \$283 billion.

Regardless of the kind of authority we are talking about, there is a distinction between authority to spend and actual spending in any given fiscal year—the actual payment of funds to execute programs that have been authorized, regardless of when or how those programs were so approved by Congress. In the most simple terms, outlays reflect the value of the checks actually written in a given budget period (FY), so outlays more than authority reflect the immediate effect on the economy of the defense effort as a whole, or of any given program within it. In these days nearly everyone says they are interested in deficit reduction, which is outlay control, and not necessarily control over

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<sup>27</sup> According to *National Defense Budget Estimates*, Office of the Assistant Secretary of Defense (Comptroller), FY88/89 edition, April 1988, p. 1, before FY79, the TOA vs. B/A difference was mainly due to Congressional actions directing transfer of previous year B/A balances to finance direct programs (increasing TOA with no effect on B/A); application of shelf stock sales receipts to finance direct programs (increasing TOA with no effects on B/A); and the accounting techniques applied when B/A lapsed before obligations were incurred (decreasing TOA with no effect on B/A). Starting in FY79, Congress decided that transfers of previous year B/A balances that extend the life of an appropriation should be treated with respect to their effects on both TOA and B/A. If previously appropriated funds are brought forward and their life is extended to keep them from lapsing, this is a *reappropriation*. An additional variance between TOA and B/A concerns the way Net Offsetting and Trust Fund receipts are handled. These are deducted from B/A but have no effect on TOA. These are collections from the public that arise out of certain business or market-oriented activities of the government, with the proceeds being deposited in designated receipts accounts.

<sup>28</sup> The category "Adjustments" here reflects these transactions.

Table 2  
RECONCILIATION BETWEEN TOA AND B/A FOR FY88  
(Billions of \$FY88)

Total Obligational Authority		\$289.0
Financing Adjustments by Title:		
Military Personnel	0	
Operations & Maintenance	-1.1	
Procurement	-3.1	
RDT&E	-0.6	
Military Construction	-0.3	
Family Housing	-0.2	
Revolving and Management Funds	0	
Total Financing Adjustments		-5.1
Receipts:		
Trust Funds	+(a)	
Interfund Transaction	-(a)	
Offsetting Receipts	-0.7	
Total Receipts:		-0.7
Total Adjustments:		-5.8
Budget Authority		\$283.2

<sup>a</sup>Less than \$50 million this FY.

authority, except (1) to the extent that authority to spend converts to outlays in the near term; and (2) when we are considering outlay management not only in the short run, but perhaps for an extended period as well. We can then select from a range of programs for cutting. Some, for mainly legal reasons, will not be controllable<sup>29</sup> in the sense that a certain spending activity can be canceled, delayed, etc. without some modification of existing laws or the renegotiation of contracts already signed.<sup>30</sup> That being the case, how do decisions to cut given programs lead to reduced deficits?

Some authority may take some time to be converted into direct spending.<sup>31</sup> Table 3 shows how appropriated funds for certain activities actually spend out over time.<sup>32</sup> Suppose that an aircraft carrier costs a total of \$4.0 billion. Only a couple of percent of

<sup>29</sup>See the discussion associated with Fig. 13 below.

<sup>30</sup>Many contracts include various cancellation clauses and other provisions, which makes cancellation of a program quite expensive in the near term. It often seems to make more sense to continue with the program in question.

<sup>31</sup>Authority may lapse or be sequestered, rescinded, or otherwise transferred. For this reason, in the very long run, authority to spend and actual spending will not be equal. But over the indefinite term, cumulative authority and outlay accounts should wind up being roughly the same, at least for the purposes of this large-scale portrayal.

<sup>32</sup>Table 3 is taken from Kaufmann, 1986, p. 16.

Table 3  
TYPICAL SPENDOUT RATES FOR AUTHORITY BY APPROPRIATIONS TITLE  
(Percent of appropriation spent by year)

	1st	2nd	3rd	4th	5th	6th	7th
Military Personnel	98	2	—	—	—	—	—
Operations & Maintenance	83	14	2	1	—	—	—
RDT&E	56	36	6	2	—	—	—
Procurement							
Missiles	19	49	28	4	—	—	—
Ammunition	12	52	28	8	—	—	—
Aircraft	10	44	36	6	4	—	—
Tanks	6	40	38	11	5	—	—
Ships	2	14	18	18	18	18	12
Military Construction	8	36	30	13	7	6	—

the cost of the program (probably no more than \$200 million) would actually be spent in the first fiscal year.<sup>33</sup>

To illustrate the resulting situation, Table 4 shows the difference between authority and spending, again with respect to the FY88 budget. For most categories—be they fast or slow money accounts—the categories are about the same. However, this doesn't distinguish between the sources of funding of these different programs. In fact, the two accounts are about the same for most categories mainly because the internal makeup of the budget over the preceding few years (since before the peak year of FY85) had changed fairly slowly.

In Table 5 the actual origin of funds to be spent for different fiscal years is a function of when that authority to spend had been authorized.<sup>34</sup> For instance, in FY88, given a total National Defense B/A proposed for enactment of \$292 billion (and programmed outlays of \$285 billion), some \$113 billion (40 percent) of those outlays in fact represent authority granted by Congress in previous years. This, as suggested by Table 3, is largely procurement of weapons. As Table 5 suggests, the proportion of carryover authority remains about the same over this period, revealing the constant proportional shares of each budget in terms of appropriations titles (and hence constant ratios over time or money with different kinds of spend-out profiles).

<sup>33</sup>Full funding from the start is legally required, in this case, for the ship regardless of the actual construction schedule.

<sup>34</sup>These numbers reflect budget requests for those FYs.

Table 4

DIFFERENCE BETWEEN AUTHORITY AND SPENDING, FY88  
(Billions of \$FY88)

	B/A	Outlays
<b>The DoD Bill</b>		
Military Personnel (including Retired Pay)	76.1	75.5
Operations and Maintenance	80.7	80.4
Procurement	81.0	79.2
Research and Development	36.7	33.1
Revolving and Management Funds	0.8	1.4
Total	275.4	269.5
<b>The Military Construction Bill</b>		
Military Construction	5.4	5.4
Family Housing	3.1	3.0
Total	8.5	8.4
Contingencies (offsetting receipts)	( 0.7)	( 0.7)
051 Total DoD	283.2	277.3
053 Atomic Energy (Department of Energy)	7.7	7.6
054 Other Defense		
Treasury/Postal Bill (GSA, stockpile, etc.)	—	—
HUD/Indep Agencies (FEMA, Selective Service)	0.3	0.3
Dept. of Transportation (Ready Reserve Fleet)	—	—
Defense Appropriations Act (certain intelligence related)	0.2	0.2
Funds Appropriated to President	—	—
053/054 Defense Related	8.3	8.3
All National Defense (050)	291.4	284.6

Generally, then, *outlays* reflect the total burden of national defense as a component of the total U.S. federal budget; they are an appropriate measure of national security spending in an economic sense. Since there is a time lag between the budgeting of funds (appropriation by Congress), the signing of contracts and placing of orders (the incurring of obligations), and the receiving of goods or services and the making of payments for them (liquidating obligations), authority statistics reflect not only the implications for much future year spending, but also the net value of the defense program as a whole.<sup>35</sup> Finally, not all of the money authorized and appropriated in any given fiscal

<sup>35</sup> Large unobligated defense balances are considered undesirable because they reflect balances not being pushed through by Executive departments. Unobligated balances may also be politically tempting targets. Recently, one-fourth to one-third of the balance of previous year B/A for defense has been unobligated. See Foelber and Maroni, 1984.

Table 5  
NATIONAL DEFENSE OUTLAYS, FY83-88  
(Billions of \$FY88)

Outlay	1983	1984	1985	1986	1987	1988
Total national defense	245	256	279	298	287	285
Outlays from current year budget authority	165	168	179	179	182	172
Outlays from previous year budget authority	80	88	100	119	105	113
Outlays from previous year authority as percent of defense outlays	33	35	36	38	37	40

year plan does get spent according to that plan. Funds appropriated may not be immediately obligated; funds (whether obligated or not) may, with Congressional approval, be reprogrammed, transferred, or reappropriated;<sup>36</sup> funds not obligated may lapse and be returned to the Treasury, etc. Additional funds may be programmed.<sup>37</sup> Finally, procedures are described in the Gramm-Rudman-Hollings deficit reduction plan whereby an automatic process called sequestration would reduce certain budget line-items.<sup>38</sup>

Automatic deficit-reduction cuts will explicitly target outlays. The sequestration procedure of Gramm-Rudman-Hollings (GRH) is generally blind to specific cuts, and if GRH is implemented, turbulence in the long-term program will invariably result. If savings must be generated in short order, and if pursued through the budget and not by GRH, there will be a powerful tendency to reduce the accounts that would yield deficit reduction payoffs in the near-years.

<sup>36</sup>DoD, with Congressional approval, may reprogram resources from one line item to another, and either the DoD or Congress may rescind previously appropriated budget authority (of any FY), whether obligated or not.

<sup>37</sup>Additional funds can be approved by means of amendments to a budget under consideration or through supplemental appropriations, although Congress has come to consider such requests at the same time that it acts on next year's budget request.

<sup>38</sup>See the description of the P.L. 99-177, The Balanced Budget and Emergency Deficit Control Act of 1985, also known as Gramm-Rudman, Gramm-Rudman-Hollings, or GRH-II (in its revised form), after its Congressional sponsors, in App. A.

## II. THE U.S. DEFENSE BUDGET IN ITS NATIONAL CONTEXT

This section considers the defense budget in its largest sense. It examines historical U.S. defense spending and the relationship of these figures to other national level aggregates. After a quick preliminary survey of defense budgets over time, it looks at defense spending as an element within the overall federal budget. Finally, it reviews some larger-scale measures of the defense burden on the economy, in both absolute and in per capita terms.

In both absolute and relative terms, defense has declined steadily as a component of both the economy as a whole and as an element of government at any higher level. Even during the Reagan buildup, the trends giving rise to these facts were not materially altered. The reasons for this will not be dissected in detail, but the results are not accidental. Political factors have been at work that would be extraordinarily difficult to change. Consequently, barring major shifts in national priorities and policies (for instance, a major tax increase), the competition between defense and other priorities should become more intense in the years ahead.

### THE U.S. DEFENSE BUDGET, FY46-88: AN OVERVIEW

It is useful to begin with a brief historical overview of the U.S. Defense budget. Figure 1 shows the DoD budget over the period FY46-88, given in billions of \$FY88 (TOA).<sup>1</sup> Annual figures range from a low of about \$70 billion in FY47 (as demobilization after World War II continued apace)<sup>2</sup> to a high of about \$320 billion in FY85 as the Reagan defense buildup reached its zenith. This figure quite strikingly

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<sup>1</sup>This use of TOA instead of outlays is an exception in this section. Authority is used here instead of outlays because, while outlays are a more meaningful index of the economic significance of defense spending, authority in a given year is a somewhat better barometer of political sentiment regarding defense needs (and a somewhat better way of demonstrating the relationship of exogenous events and perceived defense needs).

<sup>2</sup>In August 1945, total Army manpower (less personnel assigned to the Army Air Forces) stood at 5.9 million in 89 divisions, and the AAF consisted of 218 groups. By 1 January 1946, Army manpower stood at 4.23 million, while AAF maintained 109 effective groups; by July 1946 the Army had shrunk to 1.89 million personnel (in 11 divisions, many understrength), and AAF strength had fallen below 52 effective groups. Note the imbalance between combat formations (notably Army divisions) and personnel



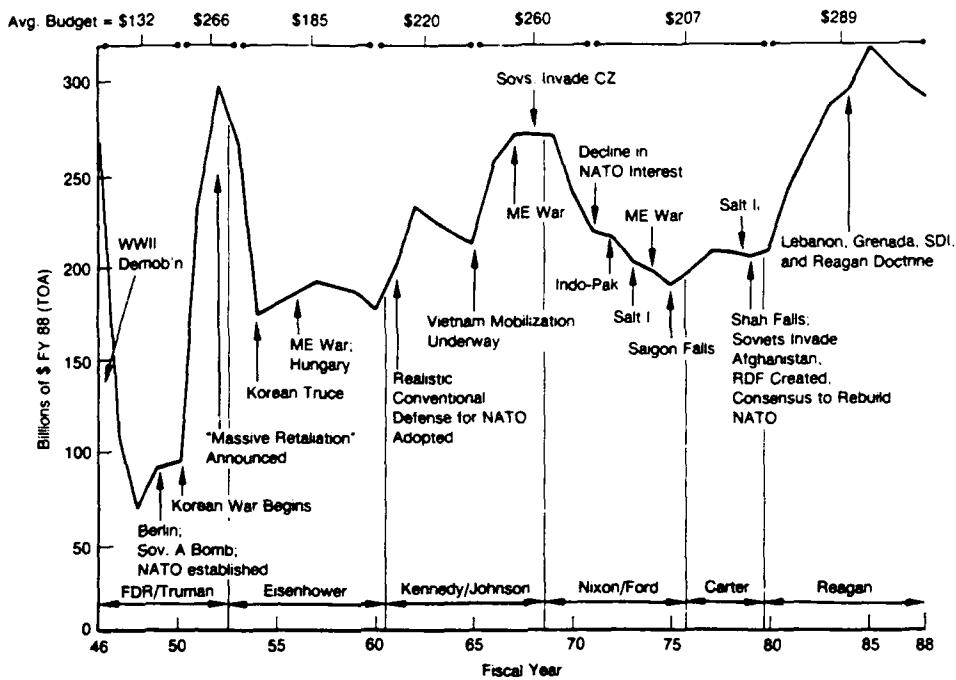


Fig. 1—The U.S. defense budget, FY46–88: an overview

shows the dashing of early hopes that a large peacetime force might not be necessary, brought home by the outbreak of the Korean War, followed by the enduring perception thereafter that a substantial defense budget would be necessary. By 1948, President Truman sought to stabilize defense spending at around \$80 billion per year—a budget seven times higher, in real terms, than pre-World War II levels.<sup>3</sup> But then the outbreak of the Korean War, the Soviet acquisition of the atomic bomb, the decision to invigorate NATO defenses, and other policy choices led to the abandonment of such expectations. Subsequently, the Eisenhower administration's defense spending goal was set at about \$240–250 billion, with a Military Personnel target of 2,800,000. This level of effort represented in fact a ceiling of sorts: Spending for conventional defense capabilities was to be held down by virtue of reliance on nuclear weapons, and a budgeting formula

levels (i.e., in contrast to these numbers, the Army maintains 18 active divisions with only some 746,000 personnel). The imbalance is attributable to the general nature of the circumstances surrounding demobilization.

<sup>3</sup>See Kaufmann, 1986, p. 20.

called the "iron law" was utilized to set fairly arbitrary year-to-year constraints on the defense effort as a whole.<sup>4</sup> Of course, the repudiation of the Eisenhower's "New Look" strategy and the abandonment of a rigid defense budgeting formula meant that budgets could and would rise higher than the mid-\$200 billion range if necessary. Subsequently, these budgets have resided in the \$175-300 billion range. Of interest, then, are the events and decisions over as much as \$100-125 billion per year, but *not* the entire \$250 or \$300 or so billion.<sup>5</sup>

The general pattern of movement in this trend over time is one of a modest upward trend, punctuated by three phases of buildup and then let-down: (1) the Korean War, (2) the Vietnam War, and (3) the (peacetime) Reagan defense buildup.<sup>6</sup> Factoring out a few extreme boom periods (and also discounting the precipitous post-World War II demobilization), the DoD budget trend turns out to be rather less volatile than much popular discussion would have us believe. The stakes in the defense budget debate appear to be less than all-out over any given short-term period.

Figure 1 also shows selected points and developments that have related to the fate of the defense buildup. The tenure of each presidential administration is also indicated. The DoD curve is hardly capricious: With only the partial exception of the peacetime Reagan buildup, major movement comes in response to foreign wars and severe crises.

Conversely, when there is no such stimulus for growth, the budget declines and stays at low levels until a crisis intervenes, or the perception arises among the public that too much decay has infiltrated the overall national security effort. The consequence of

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<sup>4</sup>The "iron law" was a budget balancing technique by which the Eisenhower administration tied defense spending to other federal accounts and to tax revenues.

<sup>5</sup>This is not to suggest either that as much as \$200 billion of the defense budget is untouchable, or that the budget would ever be adjusted by this much up or down in one or even several FYs. But there does seem to be a historical floor (something in the high \$100 billions) below which Defense has never gone; further, given a fairly stable U.S. posture (roughly the case since the early 1960s), to cut the budget so that it moves toward this historical floor value would require dramatic posture and capabilities cuts as well. The costs of maintaining a fixed, continuing services posture over time increase because of real program cost inflation driven by many factors.

<sup>6</sup>Though I have characterized these periods with an overarching or dominating theme, or military problem, other developments also were at work to shape defense budget totals. For instance, the "Korean War" epoch also saw the beginning of major NATO defense efforts and a major strategic buildup. But the dominating "event" of each epoch accounts for the lion's share of additional funds obtained.

this cyclical pattern has been a series of more or less internally and logically consistent defense epochs. These are shown also, then, along the top of the figure, along with the average defense budget prevailing during each of them.<sup>7</sup> Of the seven epochs shown, three represent decidedly bear periods for the defense budget, and three epochs are bull budget intervals (the epoch separating the Massive Retaliation and Vietnam phases can be considered a transitional period of sorts). The average budget for the 20 or so years contained in the bear periods is some \$180 billion; and for the 19 bull years, the average defense budget is about \$275 billion. These two numbers fairly characterize the bounds of the defense budget over time.

The defense budget total reliably reflects what is going on in the world, although the lead times between challenges to Western security and the response in the form of an increased DoD budget are in some cases complex. The average value of the defense budget over the entire period FY46-88 is \$222 billion (which is, of course, more or less the exact average of the bull and bear years' averages); since FY54, the average defense budget has been \$232 billion; and since FY62, the average has been \$246 billion.<sup>8</sup> Consequently, it is not unreasonable to think in terms of natural good budget years as residing within a \$245-285 billion range (with a few war or major buildup years exceeding the high envelope), and unfavorable budget years as anything less than the recent historical average, probably meaning, omitting certain outliers, defense budgets in the \$205-245 billion range. In general, moreover, the overall trend of the DoD budget over time has been modestly upward.

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<sup>7</sup>From left to right are these budgetary epochs: (1) the post-World War II demobilization, (2) the Korean War years, (3) the years of Massive Retaliation, (4) the move to Flexible Response, (5) the Vietnam War years, (6) the "decade of neglect," and (7) the Reagan buildup, followed by the more recent decline—which, even though it is in its fifth consecutive year, still involves historically high defense budgets because of the size of the overall buildup in the early 1980s.

<sup>8</sup>The average since about the end of the Vietnam War (FY73-88), a period including a downturn and then buildup, also turns out to be \$246 billion; and the average over the course of the pre-Vietnam Kennedy/Johnson adjustment, and the Vietnam cycle altogether (FY62-72) is almost the same, about \$243 billion. Considering the path of the Defense budget as cyclical, the cost or average amplitude of one DoD cycle (an extended period containing a trough and a peak) is about \$250 or so billion, at least since the abandonment of Massive Retaliation.

### **Close Up on Historical Developments and the Budget, FY46-88**

After FY46, which still includes direct support of World War II requirements, the abrupt demobilization of the U.S. national security effort is evident. Following the outbreak of the Korean War in June 1950, it was clear that the traditional, mobilization-base approach to national security was too risky, so a larger standing force, increasingly forward deployed, was retained and reinforced after the Armistice. Even so, to hold down budgets, President Eisenhower placed great reliance on nuclear forces, which were perceived as more cost effective if less strategically flexible.<sup>9</sup>

By the late 1950s concerns with the credibility of U.S. strategy, new strategic requirements, and crises over Berlin, Cuba, and other hot-spots stimulated a reorientation of U.S. strategic concepts, prompting wide-ranging conventional forces modernization and expansion plans. The new strategic nuclear policy devised by Kennedy and McNamara relied on a force dominated by more efficient missiles, not bombers, and down-played the importance of strategic defenses. In some sense, this reconfiguration of a very broad and ambitious strategic effort was exploited to free up funds needed to enhance conventional deterrent capabilities.<sup>10</sup>

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<sup>9</sup>The objective in relying on nuclear forces was not just to hold down day-to-day defense costs. The administration was not interested in the agonizing prospect of a replay of a painful conventional war contingency, especially an ambiguous, controversial war like the one in Korea. At the time, it was widely believed that a superior nuclear deterrent could deter smaller challenges (or as General LeMay put it, if you could "lick the cat, you could lick the kitten"). And much exploration of the use of so-called tactical nuclear explosives went on the presumption that this use of technology would permit scaled-down and less expensive general purpose forces to accomplish the same combat roles as traditional ground and other theater forces, an important consideration given the manpower predominance of an apparently unified Sino-Soviet ground force threat. But the assumptions and propositions underlying this strategic framework were subject to increased debate as the 1950s went on; and by 1957-58, it was widely conceded that some kind of reformation of U.S. strategic concepts was necessary.

<sup>10</sup>To hold down the operational costs of the posture, McNamara oversaw the retirement of some 1,500 bombers, these being replaced with 1,656 new strategic missile launchers (1,000 Minuteman and 41 Polaris submarines carrying 16 missiles apiece). McNamara also canceled or otherwise cut several proposed strategic offensive weapons. (The last B-52H was delivered to SAC at the height of the Cuban Missile Crisis.) The Minuteman program (as well as Polaris) was given redoubled priority, with silo-basing endorsed (rather than more expensive arrangements such as train or aerial basing). Strategic defensive capabilities, moreover, declined from a force that included almost 1,800 aircraft (half of them active) in the early 1960s to a total of about 1,200 in FY69 (less than half of them active), and then about 200-400 aircraft, about equally split between active and reserve forces. Between FY55 and FY63, strategic defense spending exceeded \$42 billion, a cost comparable to any of the major offensive modernization

Plans to rehabilitate and rationalize U.S. strategy, particularly for credible conventional defense in NATO, were to be severely disrupted by the pressing requirements imposed by the Vietnam War. This contingency not only redirected the shape of many U.S. security programs, but the direct costs of the war also probably amounted to a total of some \$500 billion or more, depending on how costs are computed and assigned.<sup>11</sup> The Vietnam experience both underscored certain traditional planning assumptions (Vietnam was, after all, a mobilization war, a coalition war, and, from a strategic logistical point of view, was run from rear areas in an efficient peacetime mode), and posed new demands of many kinds.

Subsequently, the effects of Vietnam produced a period of what might be called anti-military backlash; and budgets declined, and stayed down, accordingly.<sup>12</sup> After a wartime peak (in FY68) of some \$280 billion, the budget declined rapidly to \$193 billion by FY73. Dramatic force reductions also took place. Total armed forces strength fell from 3.5 million to 2.1 million over the same period. The number of Army and USMC active ground divisions combined dropped from 22 in FY69 to 15 in FY71. The Navy's general purpose combatant fleet (less amphibious and mine warfare ships) was reduced from 444 in FY68 to 285 in FY73. USAF tactical wing strength declined less abruptly, from 25 to 21 active TFW equivalents between FY69 and FY71. In addition to this

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initiatives carried out over the course of about the same number of years (for instance, the Polaris system). But a downward trend in the relative priority and role of U.S. strategic defense forces continued after FY61 for two decades. Leaving aside investment in Safeguard, the trend is almost monotonically negative, from SDF spending on the order of \$6 to \$7.5 billion in the very early 1960s to a low of roughly \$2 billion by the middle and late 1970s, after which a small increase took place.

<sup>11</sup>The Vietnam War epoch coincided with other developments that had a serious effect on U.S. posture regarding our net set of security commitments. For one thing, the threat in many places, including Europe, became greater over that time: In 1968, the Soviet Union invaded Czechoslovakia, leaving five in-place heavy divisions that much closer to the front lines in Germany. Soviet forces improved. And the French withdrawal in 1966/67 from NATO's integrated military structure posed more hardships on the United States, as did the changing global economic environment. Of importance to the U.S. Navy, the great force legacy of World War II expired about 1970 (ships have an average life of 25-30 years, and the force carrying over from 1945 reached the end of its service life at that time).

<sup>12</sup>Other pertinent effects attributable to the war in Vietnam included a transient phase of neo-isolationism, the shift to an All-Volunteer Force in 1973, the passage of the War Powers Act the same year, cancellation of various strategic mobility initiatives (so as to prevent further U.S. interventionist adventures elsewhere even though these initiatives were configured primarily with NATO reinforcement in mind), and so forth.

posture erosion, weapons programs were canceled and deferred in large numbers, exacerbated by some noteworthy acquisition fiascos, and R&D initiatives were similarly constrained.

As the worst of the post-SEA "hangover" receded, the highest priority before the United States was catching up on the gains the Soviets had made during our preoccupations outside Europe, and of putting on line the never fully deployed robust theater defenses once planned for Europe. These initiatives took several forms. New generations of major conventional theater combat systems (fighter-attack aircraft and Army weapons) were moved into production. The active force grew slowly: Between FY71 and FY76, the number of active Army divisions increased from 13 to 16, and the number of USAF active tactical fighter wings from 21 to 23. There were several bleak spots remaining nonetheless. Rehabilitation of the Navy was scaled back, as was modernization of U.S. strategic forces.<sup>13</sup> And some truly appalling deficiencies remained and grew worse over the course of the 1970s, including severe decay in the quality and morale of U.S. personnel,<sup>14</sup> inadequate readiness of U.S. forces (forward deployed and otherwise), and insufficient U.S. strategic mobility capabilities.

It is impossible to say just when—or more properly, over what period of time—the residual effects of Vietnam began to fade. The interval FY75 to roughly FY79 marked a period of limited force structure expansion and modernization that was necessary to compensate for force reductions that had occurred as a result of Vietnam

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<sup>13</sup>Other factors aggravated simply low budget levels. For instance, under Title VIII of the DoD Appropriation Authorization Act of 1975, major Navy surface combatants were required to be nuclear powered. But this led to ships with intolerably high unit costs, and further constrained initiatives to rebuild the fleet. Similarly, diversions of strategic spending to the ABM program and rethinking of strategic principles, along with the apparent role of arms control as a means of constraining strategic spending costs and certain other problems (where to base a follow-on ICBM, for instance, in light of the new silo-busting threat posed by Soviet heavy ICBMs), hamstrung the orderly modernization of the Triad through the mid-1970s. However, some on the margin expedients, including the deployment of air-launched standoff missiles on bombers, MIRVing and improved accuracy for U.S. missiles, and other initiatives permitted us to keep somewhat in step with a very vigorous Soviet strategic effort.

<sup>14</sup>The Secretary of Defense for Manpower, Reserve Affairs and Logistics noted a large number (up to half, in some cases) of "Mental Category IV"—the lowest, and an undeniably inferior category—personnel was being recruited; moreover, biases in scoring recruitment aptitude tests actually led to the overstatement of the actual quality of new recruits. See Statement of R. B. Pirie, Jr., before the Senate Committee on Appropriations, *Hearings on the FY81 Defense Budget*, Part 2, 1980, pp. 3 ff.

and other factors, such as Soviet qualitative force improvements.<sup>15</sup> When it came to reviving the consensus to put a meaningful global defense posture back on line, however, it took a series of major global upsets eventually to stimulate considerable upward movement in DoD budgets.<sup>16</sup>

Beginning with the FY81 Carter administration budget submission (and with subsequent steps taken by both the Reagan administration and the Congress), a modestly upward trend of the previous defense budgets was sustained. This consisted of initiatives to modernize the forces and, perhaps more important, measures to remove intolerable readiness and personnel quality problems. Moreover, once the Reagan buildup got under way, some fairly dramatic, and in retrospect unrealistic posture *expansion* enterprises were launched.<sup>17</sup> By FY85, the defense budget was more than one-seventh greater than that of the peak of the Vietnam war in terms of real authority. Such a major effort precipitated, naturally enough, some debate on how much defense spending was enough, and of course this debate intensified after the upward budget trend of the early 1980s nosed over in 1985.

The DoD budget is apparently now heading into its fifth consecutive year of real decline; and future decline, although not inevitable, should not be ruled out. It is

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<sup>15</sup>See *Force Structure and Long-Range Projections*, Hearings Before the Task Force on National Security Programs, Committee on the Budget, House of Representatives, July 1975, pp. 61 ff.

<sup>16</sup>These include Soviet and other Communist adventures in the Third World (in Africa, the Middle East, and Southeast Asia), the collapse of our admittedly fragile defense concept for Southwest Asia—the Northern Tier—the fall of the Shah in 1979, the Soviet invasion of Afghanistan, the ejection of the Somoza regime in Nicaragua and improvement of Cuban forces, and so on. On the plus side were the movement of China into the Western camp, demonstrations of the high quality of Western weaponry over Soviet armaments, and so on.

<sup>17</sup>Most noteworthy of these was the plan to expand the U.S. Navy's fleet by more than 20 percent to a so-called 600 Ship Fleet standard. In addition, the Army moved to add two active and two reserve divisions to its force structure, and the USAF outlined plans to expand its tactical posture from 36 to 40 TFW. Plans for more strategic air- and sea-lift were also conceived. These plans have more or less failed and in some cases have been abandoned. It is unlikely we will ever get to or be able to maintain anything like a 600 ship fleet. The USAF posture goal is now 35 TFW. So far, the Army has deactivated no divisions, but since those divisions had been created with no additional new manpower, this is less important. OSD-mandated posture reductions have taken place. In April 1989, Secretary of Defense Cheney ordered some older surface combatants transferred to the Navy Reserve, announced a reduction in the Navy's carrier fleet goal from 15 to 14 CV/CVNs, and ordered the deactivation of an active Army brigade, among other things.

generally agreed that budgets up through that of FY90 have not really had to come to grips with some of the more difficult problems before the Defense Department's planners. So far, the FY90 budget is consistent with the requirements of Gramm-Rudman-Hollings, but some say that this is on account of optimistic economic assumptions,<sup>18</sup> bookkeeping legerdemain, and one-time, stop-gap measures.<sup>19</sup> In FY91, it will be necessary to achieve a deficit of not more than \$64 billion.<sup>20</sup> But barring some kind of economic miracle, a decision to raise taxes, or some unexpected development on the international scene, this goal cannot be met without major DoD program tradeoffs, and, given the priority placed now by the Secretary of Defense and the Joint Chiefs of Staff on readiness probably to involve force structure end-strengths and major procurement.<sup>21</sup>

### **Selected Summary Findings of This Review**

Based on this cursory overview, four interesting facts emerge. First, the magnitude of the 1980s peacetime defense buildup compared with even the Korean and Vietnam War mobilization experiences is striking; conversely, the baseline from which decline after FY85 will be measured is high.

Second, although there is no accounting for all the factors that influence the size and mix of the Defense budget, unless there is some reason for the budget to move up substantially (a war or major buildup under way),<sup>22</sup> the general tendency of the budget

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<sup>18</sup>The GAO reported that President Bush's Five Year Defense Plan was at least \$100-150 billion shy of what Congress was likely to make available to the Pentagon. See Wilson, 1989, p. 6; and Rosenthal, 1989, p. 20.

<sup>19</sup>See Wessel and Yang, 1989, p. 14. One of these measures involved a scheme to pay defense personnel a few days early so that their payroll would not appear on the FY90 outlays books.

<sup>20</sup>Senator Dominici estimated that \$60 billion of added revenues and spending cuts are necessary to meet that deficit target. This, apparently, is twice the amount budget planners claim to have achieved in plans to date. Wessel and Yang, 1989.

<sup>21</sup>See "CINCs Opt for Readiness Over Procurement," *Defense Daily*, April 19, 1989, p. 101.

<sup>22</sup>Historically speaking, individual crises have not themselves tended to lead to major upward budget movement over any sustained period. They may lead to other things (for instance, the decision to contribute certain U.S. forces to NATO, or the passage of the Tonkin Gulf resolution), but with the exception of the Reagan era buildup (and to a lesser degree the early Kennedy buildup, which saw the admixture of serious crises in Berlin and Cuba with the introduction of a new national strategy), an extended period of budget growth is unlikely *without a shooting war*. In the case of the unique Reagan buildup, one finds the combination of a string of crises (Afghanistan, Iran), the cumulative effects of



seems to be to creep down over an extended period (as happened through the mid- and late 1950s and most of the 1970s). If that continues to be the case, the budget should modestly decline over an extended period. Thus, as a general rule, the Defense budget tends over time to jump up, but creep back down.<sup>23</sup>

Third, there has been an overall upward growth trend line over time (regardless of the existence of certain peaks and troughs). Over the period FY47-88 (excluding one year of major turn-down), the arithmetic average real growth rate works out to about 2.9 percent; over the period FY54-88 (since the end of Korea), the average is 0.6 percent; over the period FY62-88, the average is 1.6 percent; and over the period FY74-88 (post-Vietnam), the average is 2.4 percent. In general, since the replacement of Massive Retaliation by Flexible Response then, the average real growth rate is something shy of 2 percent per year when all data are included. When exceptionally good growth years (e.g., FYs 1981, 1982, and 1966, in which real growth was about 22 percent, 15 percent, and 10 percent, respectively) are excluded, the residual arithmetic real growth rate after FY62 is just about 0 percent, endorsing the "creep-down/jump-up" point just made.

Fourth, the general pattern of the defense budget is somewhat cyclical over time. This runs counter to most prevailing wisdom about the way the defense budget actually does, or should, work. Based on an admittedly limited (from a statistical perspective) set of data, booms and busts seem to be the rule; they do not necessarily represent deviations from a stable defense budget objective.

## MAJOR COMPONENTS OF THE FEDERAL BUDGET

Before we move on to a close-up look at some of the Defense Department budget's internal features, it is useful to review just where defense spending has stood over time as a component of all federal spending.<sup>24</sup> A very highly aggregated profile of

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years of underspending, and several national security *causes célèbres*, such as the strategic "window of vulnerability."

<sup>23</sup>For a statistical review of this phenomenon, see Tables 11 and 12 below.

<sup>24</sup>Note that we here are examining *National Defense (050) outlays*, and neither DoD-specific spending, nor authority for national defense spending, whether by DoD or any other agencies. Mention should also be made about those components of the federal budget that have been considered off budget. Off budget programs refer to those programs and transactions that have been excluded by law from the federal unified budget. Historically, an odd collection of activities (e.g., the Post Office, Federal Financing Bank) were placed off budget and therefore were not subject to spending limits established under budget acts. However, because these activities affect the national economy (including the deficit), under the terms of Gramm-Rudman-Hollings

this history appears in Fig. 2, which traces the rise of total federal spending since the end of World War II. One immediately striking feature is that, measured in real terms, federal spending grows at a rather steady rate of about 4.3 percent per year over this period. (Between FY75 and FY79, the average growth is 3.4 percent; after FY81, the

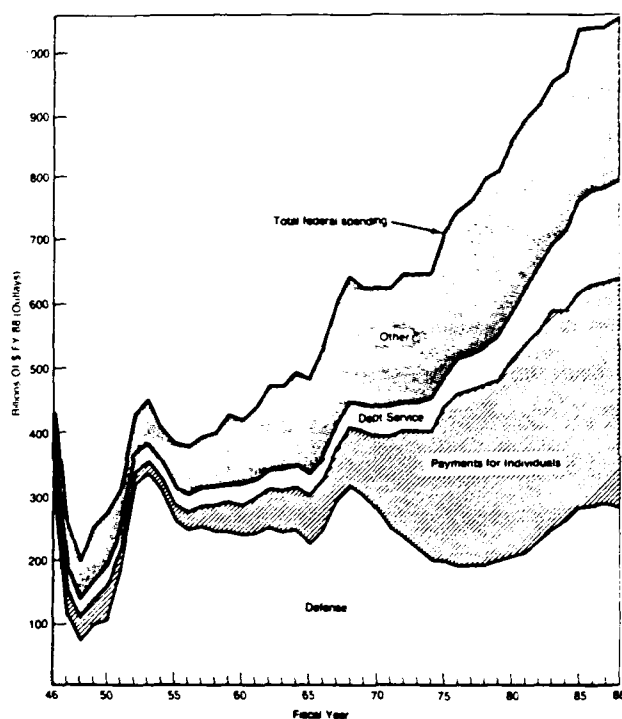


Fig. 2—Some major components of the federal budget, FY46–88

(P.L. 99–177), all off budget activities are now considered on budget. An exception is that, beginning in FY86, Social Security (both its receipts and disbursements) was excluded from the budget in this sense. (In FY88, a new functional federal budget category, 650, was created for Social Security). There is obviously a difference in the effect upon the national economy of the defense effort (which is a large consumer of goods and services) and many other federal undertakings that represent mainly transfer payments to individuals and other echelons of governments. However, for the sake of consistency, this document considers all federal outlays together, whether they are (or ever were) on or off budget, and regardless of the nature of their disbursements.

average is 2.3 percent.)<sup>25</sup> Within this growth pattern, certain major realignments in emphasis among the constituent accounts over time are clear.

In particular, the overall federal spending profile illustrates the effects of certain discrete developments. World War II had decisively pulled the United States out of its Great Depression doldrums. After the war, unemployment was low, there was a great pent-up demand for consumption, Congress was unwilling to maintain a large standing force (or even approve certain mobilization hedges, such as Universal Military Training), and other federal priorities (such as paying off wartime debt) became important. Because of the primacy of the war effort and the modest size of nondefense programs, the post-World War II defense demobilization caused federal spending to plunge from a figure of about half a trillion dollars down to around \$200 billion. The majority of spending, of course, was defense related. In spite of concerns with inflation stimulated in part by the great reduction in federal spending, however, the economy as a whole made a remarkably easy transition to a peacetime mode, avoiding some of the more pessimistic forecasts of the time. Indeed, only a modest recession took place in 1948-49.

By the outbreak of the Korean War, the U.S. economy was already recovering well from that downturn. Federal spending, chiefly in response to the military requirements of the Korean emergency, grew dramatically, from a level of \$275 billion in FY50 to almost \$460 billion by FY53. Again, the effects of this federal spending boom contributed to reduced unemployment and this, in turn, increased fears of inflation. To contend with this possibility, President Eisenhower moved to reduce federal spending while deferring tax cut proposals. Subsequently, the economy again moved into a recession in 1953, partly as a result of Korean War wind-down. In response to this, Eisenhower was willing initially to tolerate deficits, and by 1955 the economy was growing again. By this point, Eisenhower's thinking had changed considerably, and he elected to place a high priority on a balanced federal budget, even if this meant constraining defense spending (a process aided by the mechanism of reliance on fairly inexpensive nuclear weapons). A roller coaster of inflationary fears alternating with mild recessions characterized the remainder of the 1950s.

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<sup>25</sup>This rate exceeds the average annual growth rate of GNP, defense spending, or certain other indices one could cite. There are two noteworthy exceptions to this rule: a faster rise coinciding with Vietnam and the Great Society, and a period of no growth in the early 1970s, when growth in the payments for individuals category can be thought of having consumed, among other things, the funds freed up by the defense budget decline after Vietnam.

The Democrats criticized Eisenhower's policies as too rigid and unimaginative. The decade ended with the Democrats taking office believing in the advantages of, as well as the need for, increased public spending (plus tax cuts), whether military or civilian, to get the economy rolling again. Although no recession took place after the inauguration of John F. Kennedy, the economy had begun to falter by 1962. The Democratic leadership generally took the view that it was better to pursue policies risking inflation than it was to suffer unemployment and risk a serious recession. A tax cut in 1964 greatly revived the economy, and by 1965—with programs to increase U.S. conventional force capabilities under way and the Vietnam War heating up—President Johnson believed that the nation could afford both "guns *and* butter," the former meaning the Vietnam War and the latter the ambitious Great Society program. War related costs, those of Great Society programs, very low unemployment, and the President's unwillingness to increase taxes predictably again unleashed prospects of inflation. Johnson began to contemplate tax increases by 1966 but was afraid of the political effects these would have on popular support for the Vietnam contingency. As a result, no action was taken on tax increases until 1968, when the nation found itself facing the worst sustained inflationary pressures since World War II.

Partially on account of the growth of nondefense spending, especially in the 1960s, the effects of Vietnam did less than Korea to influence the total federal budget top-line; and on account of subsequent expansion of entitlements, social programs, and debt service, the effects of the recent defense buildup seemed to play even less a role in the evolution of the government budget as a whole. Even so, the perception of the need for nondefense programs made an increased degree of competition between the "guns" and "butter" options inevitable.

The economic situation throughout the 1970s was generally dire. Popular distaste with the Vietnam experience, plus economic problems resulting from declining productivity, wage and price controls, restrictive monetary and fiscal policies, supply (especially oil) shocks, and antagonism between President Nixon and Congress over federal budget control had led in early 1974 to the most serious recession since the end of World War II. Indeed, in this context, U.S. fiscal policies through the mid-1970s virtually guaranteed a lack of upward movement in the defense budget, not that the willingness existed in Congress or among the general public for an expanded defense

enterprise in the first place.<sup>26</sup> By the late 1970s, the contest between unemployment and inflation was completely upended. As a result, defense budgets through what has come to be known as the "decade of neglect" did not grow appreciably after they had bottomed out. A dispute after Vietnam on how to balance a reduction in the size of federal spending and economic growth was not, to say the least, resolved in defense's favor.

This situation changed markedly when Ronald Reagan arrived in Washington. Reagan sought to reduce social programs, cut taxes, and sponsor a military buildup. He was initially successful, particularly in the last two of these areas. Subsequently, an extraordinary period of economic growth not only made possible a dramatic buildup in defense spending, but also warded off any anti-defense backlash when the momentum behind the defense buildup ran out of steam in 1985. It is in part thanks to this situation that the decline in defense spending since the mid-1980s has been as gradual as it has, in contrast with the situations prevailing after World War II, Korea, and Vietnam. In that respect, anyway, the peacetime buildup of the 1980s is unique in the annals of federal budgeting history.

At this level of aggregation, defense appears, with the exception of two war-related spikes and the recent buildup, to be a fairly constant absolute element of the total federal budget since the Korean War. The larger-scale movements in the federal budget over the last three decades are generally attributable to factors other than national security booms and busts.

Table 6 summarizes the findings of Fig. 4. It reveals several interesting things, most striking the growth of federal spending in real terms on an almost monotonically increasing basis. This growth is paced only to a fairly minor degree, and even then irregularly, by defense spending. Rather, what drives the federal top-line upward is payments for individuals<sup>27</sup> and, as a result of Reagan administration deficit spending,

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<sup>26</sup>The Nixon administration's institution of various entitlement programs, along with provisions for their automatic adjustment for inflationary effects, did not have an immediate effect on defense spending but would lead to great pressures thereon beginning about a decade later. These pressures promise to continue into the future indefinitely, even intensifying with demographic shifts (for instance, an ever-aging population) and other developments.

<sup>27</sup>Such federal programs include programs to transfer income, in cash or in kind (e.g., hospital care, subsidies, food stamps). In general, this category does not include reimbursements, but it does include grants to state and local governments for analogous purposes. In the administration's FY88 requests, the total for this category was \$499 billion: Of this, Social Security (OASDI) and Railroad Retirement amounted to \$221 billion; federal employees retirement and insurance (including the VA) ran to \$59 billion;

Table 6  
AVERAGE ANNUAL VALUES, FEDERAL BUDGET ENTITIES BY EPOCH  
(Billions of \$FY88)

	1940-50	1951-60	1961-70	1971-80	1981-89	1946-89	1971-89
Defense	159	263	263	208	274	236	239
Payments for individuals	48	64	133	321	471	215	392
Debt service	25	24	33	54	131	54	90
All other	67	51	112	148	138	104	143
All nondefense	140	139	278	523	740	473	625
Total federal	299	402	541	731	1014	609	864

debt service payments. Generally, social programs (included in the "all other" category) also grew over time, particularly through the period 1962-1980). The Reagan administration attempted, with only modest success, to curb such spending. Many of the initiatives now promoted or thought necessary could increase this "all other" category in the 1990s.<sup>28</sup>

Table 7 provides average annual rate of change data for the trends appearing in Fig. 2. This table shows the average real growth per year of the various large-scale constituent accounts making up the federal budget for years collected into certain consistent epochs. The statistics tell us some interesting things about the nature of the evolution of the budget's structure. Most of the short-term shifts appear early on, when substantial fluctuations in the defense budget associated with World War II demobilization and the Korean War can be discerned, and before the growth of the nondefense sector led it to account for the majority of the federal budget. After 1962, the federal budget grows at a fairly steady rate, averaging about 3.7 percent per year in real

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unemployment assistance was \$14 billion; health costs were \$128 billion; with student, housing, food, and other assistance programs making up the balance. The estimate for FY94 (in current dollars) was then \$718 billion for payments for individuals.

<sup>28</sup>Some very big-ticket nondefense programs have been advocated recently. Some examples include catastrophic medical health care insurance, more social safety net programs (housing, job training, etc.), environmental measures, national infrastructure modernization, salvaging of the Savings and Loan industry, and other measures (drug interdiction and rehabilitation, more law enforcement, research for AIDS, etc.). One non-DoD defense-related program with a potentially high price tag would be a comprehensive clean-up and perhaps modernization of the national nuclear materials production base.

Table 7  
AVERAGE REAL GROWTH PER YEAR IN FEDERAL BUDGET ENTITIES  
BY EPOCH  
(Percent of outlays)

	1948- 1950	1951- 1954	1955- 1961	1962- 1969	1970- 1980	1981- 1988	1948- 1988	1962- 1988
Total federal	3.7	12.1	2.6	4.8	3.0	3.4	4.3	3.7
Defense	3.1	37.1	-3.3	3.1	-3.4	5.3	4.0	1.1
Debt service	-1.1	-0.1	1.4	4.7	5.5	10.7	4.5	6.8
Payments for individuals	12.0	-21.2	18.3	8.0	10.8	1.8	6.7	7.3
Other	5.1	-9.3	11.8	6.6	3.8	-0.8	3.6	3.3

terms. Since that time, defense spending seldom seems to contribute to this growth in the federal top-line at all: In 15 of 27 years between FY1962 and 1988, defense spending declined in real terms.

The fate of the combined payments to individuals and debt service shares is particularly noteworthy, insofar as this total represents an uncontrollable part of the budget (at least barring change of existing legislation).<sup>29</sup> Given the Reagan administration's decision basically to "finance" its tax cuts with deficits,<sup>30</sup> the indexed nature of most payments to individuals, the political difficulties attendant upon cutting many types of programs, and various growing social priorities (perceived needs to increase spending for health, the aged, the poor, etc.), these can only be expected to grow throughout the foreseeable future. Thus, we see the quite consistent effects of payment of interest on the national debt (which ballooned to \$140 billion in FY85 and is expected to peak at about \$160 billion in FY89), and payments for individuals. Payments for

<sup>29</sup>Controllability refers to the ability of the Executive or Legislative branches to increase or decrease budget outlays or authority during a certain fiscal year without changing basic legislation concerning that program. The government cannot change uncontrollable spending, then, without changing existing legislation. Uncontrollable spending includes outlays for open-ended programs and fixed costs such as Social Security benefits and servicing of the national debt. See the discussion associated with Fig. 13 below.

<sup>30</sup>This of course was not formal administration policy (which presumed that economic growth, reduction of unnecessary programs, and devolution of certain responsibilities to the states, among other things, would prevent deficits). However, according to Stockman (1986) and others deficit financing turned out to be the real result of these policies.

individuals grew in a fairly constant way until FY83, when the Reagan administration acted with a certain amount of success to at least restrain the growth rates of such programs.

"Other" spending here—which includes discretionary nondefense programs<sup>31</sup>—followed a course almost exactly equal to that of payments for individuals (though with lower real growth overall). The Reagan administration was able to actually produce a negative growth pattern for this account during the 1980s.

### **The Relative Contribution of Accounts to the Federal Budget**

Figure 3 recasts the data presented in Fig. 2 to show the proportional contribution to the federal budget of the four superbudget categories just described. This portrayal tells us a great deal about the reorientation of national budget priorities over time. Specifically, Fig. 3 describes the proportion of the entire federal budget represented by the four entities just described, in a stacked format.

Again, we see the draw-down of defense after the Korean War as a portion of the federal budget menu. There is a modest Vietnam-related bulge and in this proportional spending framework what looks to be an extremely modest 1980s-buildup phase. Net interest holds fairly steady, between 6.2–9.0 percent of federal outlays between 1952–80,<sup>32</sup> up until the Reagan years when it grew to a range of 10–14 percent of the total federal effort. The "All Other" account holds fairly constant in proportional terms, from an average of 12 percent in the 1950s to 20–21 percent in the 1960s and 1970s, after which the Reagan administration reduced it to the 14 percent range. Finally, the payments for individual's superaccount grows steadily from 26–28 percent between FY60–68 to 40–48 percent in the 1970s, reaching a total of about 47 percent of outlays in FY87–89.

From a defense planner's perspective, although the shares represented within the budget by nondefense federal budget components rose steadily over time, the national security share of the total federal budget expenditures has decreased. National defense averaged 43 percent of the total per year between FY46–88 and 28 percent between

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<sup>31</sup>This category consists of remaining federal spending (and offsetting receipts) except for undistributed offsetting receipts. It includes all federal loan activities and most federal spending for foreign assistance, farm price supports, medical and scientific research, and federal direct program operations.

<sup>32</sup>With some isolated exceptions.



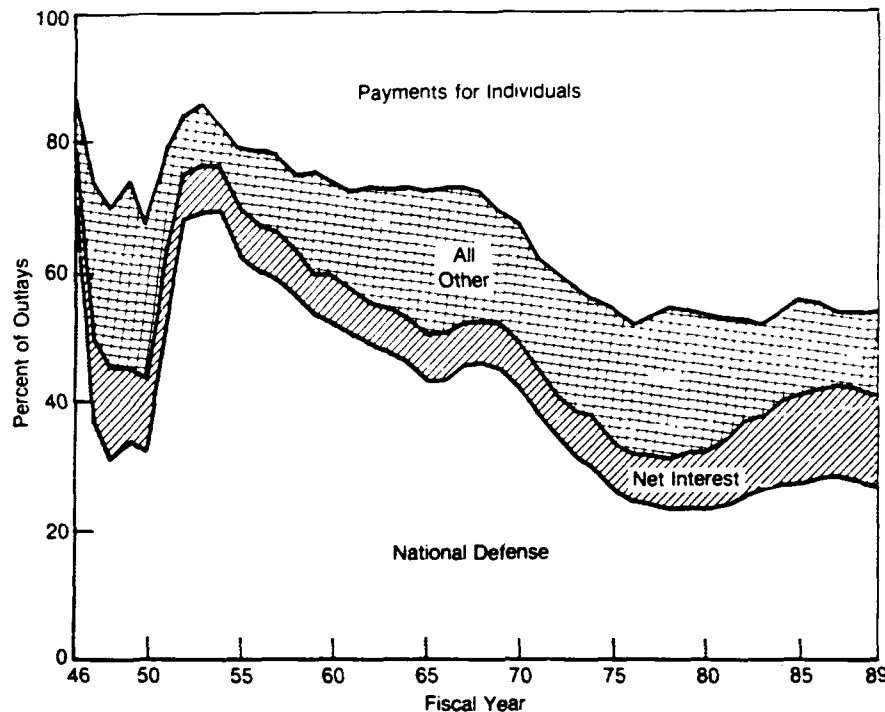


Fig. 3—Composition of federal outlays, FY46–89  
(Percent)

FY71–89, ranging from a high of 69.5 percent in 1954 to a low of 22.7 percent in FY80. The national security account made up the largest portion of the total federal budget from FY47 until FY74 (averaging 51.3 percent). It then dropped to an average of 27–28 percent during the period FY70–89.

Table 8 summarizes the proportion of federal outlays going to specific superaccounts over time. The big story in this table is the replacement in more recent years of defense spending by the payments for individuals account as the leading component in the budget. This is probably irreversible.

### Federal Revenues vs. Outlays

This portrayal conceals one interesting side to the picture that is bound to play a central role in any remixing of the shares just described. Figure 4 describes both federal receipts<sup>33</sup> and federal outlays as a percent of GNP. The gap between the two is the

<sup>33</sup>Receipts include individual income taxes (44 percent of the total in FY88), corporate income taxes (10 percent), social insurance taxes and contributions (37 percent), and excise taxes and other receipts, such as customs duties, Federal Reserve deposits (9 percent).

Table 8  
AVERAGE PROPORTION OF FEDERAL BUDGET BY ENTITY BY EPOCH  
(Percent of outlays)

	1946-50	1951-60	1961-70	1971-80	1981-89	1946-89	1971-89
Defense	53	66	49	28	27	43	28
Payments for individuals	16	16	25	44	46	29	45
Debt service	8	6	6	7	13	8	10
All other	23	12	20	21	14	17	18
All nondefense	47	34	51	72	73	57	72

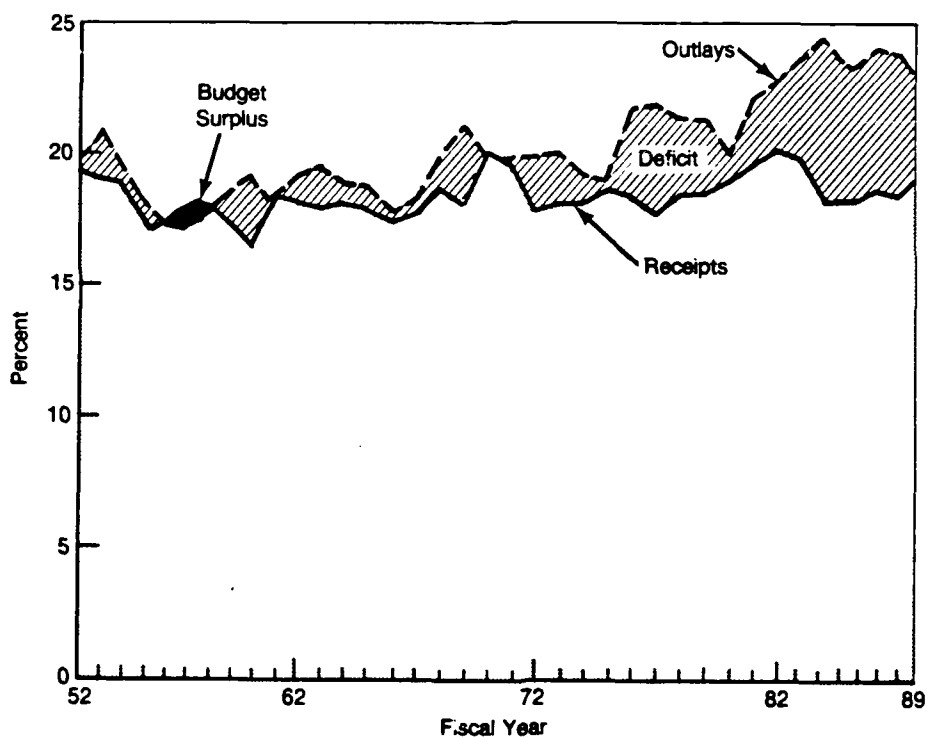


Fig. 4—Federal government totals as a component of GNP, FY52-89  
(Percent)

deficit (or in rare circumstances a budget surplus). The primary factor that now is motivating a strong look at deficit reduction is the enormous growth in the deficit over time and the corresponding expansion of the debt to be serviced.

Of course, GRH-II requires the United States to achieve a zero deficit by FY93. Unless the revenue share increases, the result inevitably will be serious reductions in federal outlays that will have severe effects on the defense effort as a whole.<sup>34</sup> Barring a change in the basic ground rules, the effects of GRH should be felt first, most likely in FY91. The alternative to defense cuts or tax increases as a means for reducing the overall deficit to within the targets mandated by GRH include reductions in other national programs (this has probably already been pursued about as far as possible—indeed, there are serious pressures to increase this account), reductions in outlays for individuals (less politically likely than a tax increase), or various alternative revenue enhancement and bookkeeping maneuvers (which have already been more or less fully explored, and are not in any case likely to generate the enduring deficit reducing effects required).

Consequently, the federal budget issue for the early 1990s will probably involve a tradeoff between defense outlays and new taxes. Historically, the defense establishment has, albeit in very poor years, survived at around the \$200 billion level.<sup>35</sup> Cutting DoD down to that level would (providing that we compensate for inflation) solve the deficit crisis more or less by itself. So, at one policy extreme, it is theoretically possible to maintain our present nondefense inventory of services and maintain the Defense Department at historically not-unheard-of levels while disposing of the deficit on the GRH schedule. But the consequences would be profound and severe, given the defense establishment's current resume of missions, responsibilities, and programs.

Alternatively, suppose that defense and nondefense accounts split responsibility for relieving the deficit in equal proportions. It is hard to see where the funds for the nondefense side would come from.<sup>36</sup> Cuts can be found, certainly, but the political environment for such an effort is not auspicious. On the other side of the ledger, even

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<sup>34</sup>See Figure 13 and accompanying discussion on pp. 66–67 showing that DoD represents a disproportionate share of the federal government's discretionary outlays.

<sup>35</sup>There remains the question of getting from the \$300 to the \$200 billion levels in a way that yields the outlay savings on time: Cutting slow money accounts would not have this effect. This consideration generally would increase the size of the necessary reduction needed to meet outlay targets. Hence, depending on priorities, it might become necessary to go below historically familiar budget floors to meet the near-term outlay reduction targets.

<sup>36</sup>In fact, nondefense outlays are projected by the Office of Management and Budget (OMB) to rise by 3.3 percent or more in real terms by FY91, holding steady thereafter. Payments for individuals are forecast (for FY93) as 20.7 percent above FY88 levels, so the difference comes from reduced interest and cuts to other programs.

allowing for the slow money problem described earlier, a \$50 billion reduction in defense outlays taken gradually over the next few years would require major posture cuts and other adjustments but would not inflict a fatal blow upon defense. The Bush administration should in some ways think of the GRH problem as one of new taxes vs. major defense cuts.<sup>37</sup>

### Defense as a "Competitor" for Federal Resources

Figure 5 condenses the data presented in Fig. 2 to emphasize certain so-called politics of the defense budget. This figure simply portrays the mix of *defense* and *nondefense* components of the federal government between FY47 and FY88. In some sense or another, this figure gives us a sense of the notional competitiveness of national defense within the federal budget as it evolves over time.

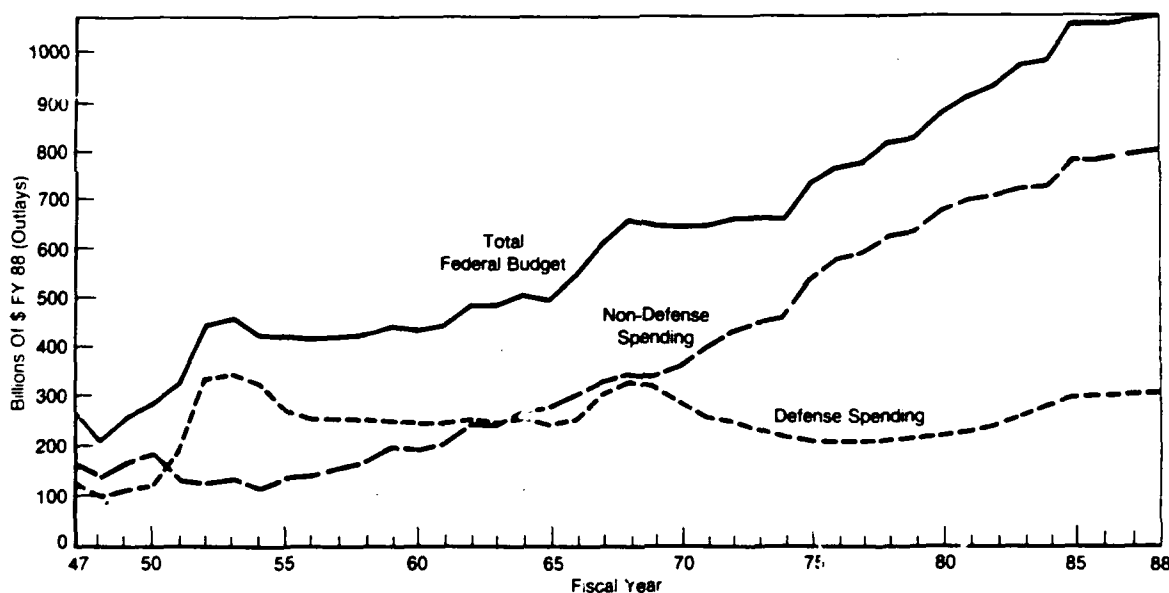


Fig. 5—Defense and nondefense spending shares of the federal budget, FY47–88

<sup>37</sup> Alternatively, the administration could opt to make no decision and just let GRH work. This would guarantee what some might take to be a fairer distribution of cuts as far as defense was concerned, since both defense and other accounts would, under GRH, bear equal shares of any sequestrations. However, these are sufficiently indiscriminate in effect that it is highly undesirable to resort to this mechanism.

The total federal budget grows at a fairly constant rate, amounting to some \$21 billion a year after FY47. Contrary to popular folklore, even a major national security-related dislocation such as the Vietnam War did not produce more than ephemeral effects on the continued upward trend in federal spending. Analogously, cuts in defense spending do little to suppress the federal budget's (and lately the deficit's) upward movement. In fact, the deficit has gone up as defense has gone down.

Viewed at a very broad level of aggregation, defense spending represents a fairly constant absolute burden over time. Although there are peaks and troughs, the defense burden oscillates around its mean value (\$233 billion per year). Given a cyclical (that is, not a steady-state) model of defense spending over the long run, defense outlays do indeed represent a sort of stable national burden over time.

The growth in nondefense federal spending since the mid-1950s, however, is dramatic. Periodic efforts have been made to curb some portions of the nondefense spending account (cuts of nondefense discretionary programs were, for instance, a not very successful Reagan administration objective),<sup>38</sup> but because of structural features, nondefense accounts increase monotonically upward.

The nondefense superaccount crosses its average value over the period FY48-88 of \$354 billion in FY71. It is now around 220 percent of that historical average, and growing. A considerable gulf has emerged between these two enterprises cumulatively speaking: some \$6.8 trillion between FY68 and FY88, an amount greater than the sum of *all* defense spending between FY60 and the present.

### **Remarks on the Cyclical Characteristics of National Defense Spending**

Within the federal budget as a whole, defense spending follows an apparently cyclical pattern over time. This reality contrasts with the belief, widely held among many defense planners, that national security spending *should* be fairly constant or steady-state: Real and fairly constant growth rates are prescribed in long-term defense budget plans.<sup>39</sup> Such so-called planning targets may be valuable for some narrow

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<sup>38</sup>For a description of the background of this issue, see Stockman, 1986.

<sup>39</sup>All in all, a constant trend approach to budget planning is quite a popular one. This approach has not only been woven into the fabric of the defense budget forecasting debate, it has been widely adopted in larger official policy communities as well: the formal 1977 NATO 3 percent growth decision, SACEUR's subsequent call for 4 percent real NATO growth to provide conventional parity with the Warsaw Pact, the "born again" Carter administration's plans for steady 5 percent growth, and the early Reagan administration's calls for 7 percent budget growth. Most recently, a return to a constant 2 percent long-term defense growth target has been advocated.

political purposes (largely because they are simple, straightforward, and at least at first bluish easy to calculate),<sup>40</sup> but they have many shortcomings. Not only have attempts to plan along these lines not succeeded, but these nominal targets exist mainly in isolation from the macroeconomic, political, threat, and other factors that are, and should be, among the key determinants of the national defense budget. Furthermore, the determination of which figures to use as baselines, the difficulty of directly costing such important nonfiscal contributions, changing exchange and inflation rates, etc. all compound the problem mightily, as do variable delays in converting TOA to outlays, and so on. For many reasons, then, such stability has never characterized defense spending in the past, nor is it necessarily a desirable feature of defense budgets.<sup>41</sup>

Nondefense spending has a distinctly noncyclical pattern. The steady upward growth in these programs after around 1960 is chiefly a consequence of growth in uncontrollable entitlement programs (and to a lesser degree, of growth in national debt financing), and this pattern can be expected to continue. Not even the vigorous efforts by the Reagan administration to cut nondefense discretionary programs really put much of a crimp in the upward movement of this trend.

One final note on the noncyclicity of the defense effort is in order. A steady-state model of the defense planning effort is one consequence of seeing the defense effort as a whole in terms of its constituent posture, meaning, to many, weapons systems. According to one commentator:<sup>42</sup>

The defense establishment represents a capital investment of roughly \$1.3 trillion (in FY1988 dollars).<sup>43</sup> It must be replaced at rates that vary from 10 to 30 years or more (depending on the military equipment in question) and that average around 20 years for the establishment as a whole. Moreover, for most of the weapons and supporting equipment that absorb

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<sup>40</sup>Indeed, when budget growth targets become *ceilings above* budgets (rather than targets) they are revealed as the two-edged swords they can become.

<sup>41</sup>This is a controversial point, not to be further reviewed. It follows more from the reality of defense budget trends over history—and the patterns of spending contained within the defense budget—and not necessarily from a consideration of the theoretical virtues of long-term budget stability, about which there is really no doubt.

<sup>42</sup>John D. Steinbruner, "The Kaufmann Perspective," in K. N. Lewis (ed.), *Defense Now and Then: A Festschrift in Honor of William W. Kaufmann* (editor and co-author), forthcoming.

<sup>43</sup>One way of imagining the derivation of this number is to assume an average procurement budget of \$85 billion and an average life-time of the items procured of 15 years.

this investment, replacement must occur at a higher level of technical performance and consequently at a higher level of relative cost. In the absence of truly fundamental shifts in external security circumstances, sensible management requires that replacement occur at a pace related to the life cycle of the equipment, neither earlier nor later than the efficient duration of service. Any deviation should be specifically justified because of long-term distortions and inefficiencies.

This source then goes on to note that the United States has not followed this policy with respect to weaponry.<sup>44</sup> The degree to which this noncyclicality reflects factors specific to weapons acquisition (such as increasing unit costs, times of development and construction), and the degree to which it is caused by the cyclical nature in the DoD top-line is not clear.

Another way of highlighting the degree of competition over time between the defense and all other accounts is given in Table 9, which shows *cumulative* spending after FY47, in \$FY88, for the defense and nondefense accounts. Again, it underscores the point that after the 1960s, nondefense spending steadily moved upward, while the defense spending trend has done so only intermittently and by no means to the same absolute amounts.

Both defense and nondefense spending accounts doubled between FY58 and FY68. After that time, however, nondefense cumulative spending continues to about double every decade, while total defense spending accrues at a considerably slower pace. If the trend of the past 30 years were to continue, with nondefense spending growing as a component of the total federal budget at about the rate of 2/3 of a percentage point a year, then defense spending would, cumulatively speaking, decline to 32 percent of all

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<sup>44</sup>This source cites Kaufmann, "[T]he United States has not followed this rule of a stable rate of replacement for the past 15 years, even though the structure of its forces has been essentially constant. During the Vietnam war a surge in defense expenditures went partly into investment as well as immediate operational outlays, but it was not systematically planned and was unevenly distributed. Tactical aircraft benefited, for example, while shipbuilding suffered. Following the war in Vietnam, the U.S. defense budget declined, reducing investment in the early 1970s below a stable rate of replacement. The budget surge over the past five years has driven investment higher than the replacement rate. Although the surge has usefully compensated for some effects of the earlier deficit, it has also produced an exaggerated commitment to current levels of technology and it has created pressures for another surge when the equipment purchased wears out. Basic military technology is evolving too rapidly to justify this disproportionate investment in its current state." Lewis, 1989.

Table 9  
CUMULATIVE SPENDING ON DEFENSE AND OTHER FEDERAL ENTERPRISES  
(Billions of \$FY 88)

	FY48	FY58	FY68	FY78	FY88
Cumulative spending, through date					
Defense	70	2440	4996	7267	9812
Nondefense	128	1468	3965	8340	15607
Total	198	3908	8951	15607	25419
Percentage of cumulative spending, through date					
Defense	38	62	56	47	39
Nondefense	62	38	44	53	61
Average annual rate of accumulation, through date					
Defense	70	222	238	234	239
Nondefense	128	133	189	269	381
Total	198	355	427	503	620

post-FY48 spending by FY98, and less than 25 percent of all post-FY48 spending by FY2008.

All indications are that the forces for continued upward movement in the nondefense categories will be strong either by necessity (as with entitlements or debt service) or by choice (as with more spending for social programs). Defense planners contemplating the 1990s need pay great attention to these trends.

#### **Duration of Defense Booms and Busts**

Given the cyclical properties of national defense spending over time, and the generally monotonically increasing character of the rest of the federal budget, it is interesting to speculate on the duration of typical booms and declines in the national defense top-line on a routine basis. During each of the three major periods of substantial budget buildup (Korea, Vietnam, and the recent peacetime buildup), national defense spending increased in real terms for an average period of about 4.3 consecutive years. If all periods in which net real growth throughout the period exceeded 10 percent are



included (that is, with minor upward adjustments in FY55-57 and FY61-62), the average is 3.6 years.<sup>45</sup>

But following such booms, a period of extended decline typically takes place. After Korea, eight (mixed) years ensued in which real budget growth averaged -5.3 percent. The total real decline from the boom's peak was -40.4 percent.<sup>46</sup> After Vietnam, a period of seven (unmixed) years of real decline followed, in which budgets declined by an average of 5.0 percent in real terms, for a total decline of 29.7 percent. Now, we are heading into the fifth year of real decline, and by the time the FY90 budget is finalized, it may well have already slipped from its FY85 high, in terms of authority, by 12 or 14 percent in real terms. Based on the experience of the 1950s and 1970s, it would not be unrealistic to expect about another two to four years of decline, perhaps leading to budgets in the \$250-260 billion range. Based on the historical evidence, defense planners today should at the least be somewhat pleased that the decline from the FY85 peak has so far been so gradual.

## **DEFENSE OUTLAYS: ECONOMIC AND BUDGETARY AGGREGATES**

Controversy persists about whether the national economy can or cannot comfortably support some particular level or other of spending for national security in times of peace. Some have claimed, for instance, that the defense burden becomes intolerable when it exceeds some arbitrary proportion of GNP, or a proportional value that takes into account other perceived federal-level requirements or obligations. In this fundamentalist fiscal framework, such variables as threats, commitments, cyclical aspects

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<sup>45</sup>On an average basis, for the three major periods of buildup, total growth throughout the period is 108 percent (from pre-buildup baseline values). Including the two minor buildups, the average is 74 percent. But these figures are vastly distorted by the size of the boom associated with the Korean War (which rose from a state of real budgetary decay in the wake of demobilization after World War II). Factoring out this period, the average total upward increment is 42 percent for the Vietnam and Reagan booms, and 32 percent including the two smaller buildups. The figures in this paragraph are based on authority, not outlays.

<sup>46</sup>A modest mini-boom associated with crises in Berlin and Cuba and the inauguration of the Kennedy administration intervened beginning in FY60. A minor upward adjustment occurred in the mid-1950s, chiefly to finance USAF strategic bomber and tanker programs, strategic air defenses, and related R&D.

of the DoD program as a whole are not, barring an actual emergency, deemed the most important determinants of the defense budget.<sup>47</sup>

Conversely, a frequently used general measure of a nation's commitment to national security is its ratio of defense spending to GNP (or GDP). For instance, the GNPs of the USSR and Japan are not at present too dissimilar; however, according to the U.S. intelligence community, the Soviets have recently been inclined to spend a fairly consistent 15-17 percent of their output on defense undertakings,<sup>48</sup> whereas the Japanese have only recently, and reluctantly, increased their defense spending beyond 1 percent of GNP. Accordingly, the USSR is evidently far more committed to defense at the expense of other important sectors of its national economy, whereas to many Americans, Japan is seen as "not carrying its fair share" of the Western defense burden. Similarly, the share of GNP spent on defense by most of the European members of NATO and Canada (in the 3 percent range or worse) is smaller<sup>49</sup> than that committed (albeit to a larger, worldwide set of security responsibilities) by the United States (recently around 6 percent of GNP). Such figures sometimes become important within overall debate on both national and coalitional defense spending policies.

In any event, Fig. 6 indicates the various fluctuations of national defense, the federal budget, and GNP over time. Defense spending as a percent of GNP has grown on three occasions, but the overall trend has been substantially downward. From FY47-FY88, the average defense:GNP ratio has been 7.7 percent, and the average arithmetic rate of change over that entire period was -0.2 percent. From FY62 to FY88,

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<sup>47</sup>See Cooper and Zycher, 1989.

<sup>48</sup>Despite recently announced Soviet military spending totals, Soviet defense spending may actually represent a considerably higher percentage of GNP than 15 percent. The figure may be somewhat larger if certain military-oriented and dual activities (space, foreign aid, etc.) are added into the basic military figures. Or Soviet GNP may have been systematically overstated over the years. In one or both of these ways, the Soviet defense burden of GNP may be as high as 20-25 percent. In contrast, the corresponding nondirect defense burden of the United States has steadily *declined* over time, in general, and represents a fairly negligible share of GNP. The Soviets have recently announced some numbers for defense spending—suspiciously low to many observers—putting their defense burden in the 8-9 percent of GNP range.

<sup>49</sup>There is considerable debate over how to measure the relative contribution to coalitional defense, especially when it comes to our European allies. These allies correctly point out the large size of their contributions in such areas as provision of host-nation support, base and training area real estate, reservists, and various defense related infrastructure. Reconciling defense spending with such hard-to-quantify contributions to the common security obviously complicates the debate on burden sharing.

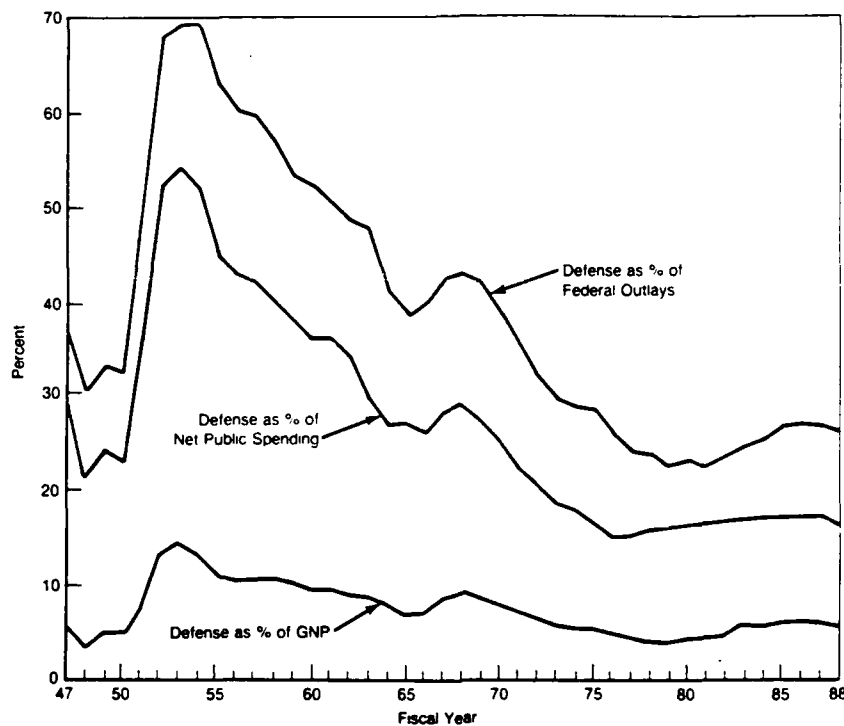


Fig. 6—Defense outlays: Economic and budgetary aggregates, FY47–88

the average has been 6.8 percent, with the arithmetic downward average annual rate of change of  $-0.3$  percent, and for FY73–88, the averages have been 5.7 percent and  $-0.4$  percent, respectively. Overall, defense spending as a share of GNP has recently ranged from 5 percent in 1978 and 1979 to 9.3 percent in FY68; taking into account earlier years, the range is larger, from 14.4 percent in FY53 to 3.7 percent in FY48.

Because of the growth of government at other levels, national defense expenditures as a share of net public spending have declined since the early 1950s from a share of 35–40 percent to a rate of 29.4 percent in FY68, and then on to 15.4 percent in FY78. Consistent with Fig. 2, national defense spending as a percent of federal outlays also tended to decline sharply overall, averaging 40.0 percent per year over the period FY47–88, but only 27.7 percent over the period FY70–88. It ranged from 69.5 percent in FY54 to 50.8 percent in FY61 to 22.7 percent in FY80, averaging 40.0 percent annually.

Table 10 summarizes these various statistics by groups of fiscal years. For all three statistics, there is a modest rise from the early FY47–54 epoch through the mid- and

Table 10  
SUMMARY OF KEY AGGREGATES, BY EPOCH  
(Percent)

	1947- 1954	1955- 1961	1962- 1969	1970- 1980	1981- 1988	1947- 1988	1962- 1988	1970- 1988
Defense as a percent of								
Federal outlays	49.1	56.4	45.7	28.8	26.3	40.0	33.0	27.7
Net public								
spending	36.5	40.0	29.1	18.2	17.1	27.2	21.1	17.7
GNP	8.5	10.2	8.8	5.9	6.1	7.7	6.8	6.0

late 1950s; actually this reflects the very low rates for all three indices of the pre-Korean War years. After the mid-1950s, the pattern is downward, with the modest exception of defense:GNP figures in the 1980s. The bottoming out had essentially occurred by the late 1970s, and the most precipitous period of decline in each of these ratios corresponds with the growth in social spending during both the 1970s and 1980s. Because of the increasing size of the federal budget (beyond \$1 trillion, of which defense is not likely ever to amount to more than 25-30 percent), the data characteristic of the 1970-88 periods will probably continue to characterize future results.

### SELECTED PER CAPITA INDICATORS

Many people believe spending on defense per capita to be perhaps a more useful measure of a society's relative burden for assuring some degree of security. Thus, in the Western European democracies, defense spending on a per capita basis typically has recently run to about \$475-550 (for the larger European allies) to a low of about \$60 (for populous and poor Turkey).<sup>50</sup> In the Soviet Union, the figure probably is somewhere between \$2,500-3,500 per capita for defense, depending on assumptions about true Soviet GNP, the meaning of defense spending, etc. In Japan, the figure is about \$175. These ranges define the scope of this measure, and permit comparison of these figures with historical U.S. ones. This is done in Fig. 7.

The per capita burden indicators shown in Fig. 7 reveal a fairly steady rise, at least since the late 1950s, in GNP per capita (though there are some periodic recessions by this

<sup>50</sup>Excluding Iceland, which spends nothing on defense and maintains no military, but does provide bases to the Alliance and to Luxembourg.

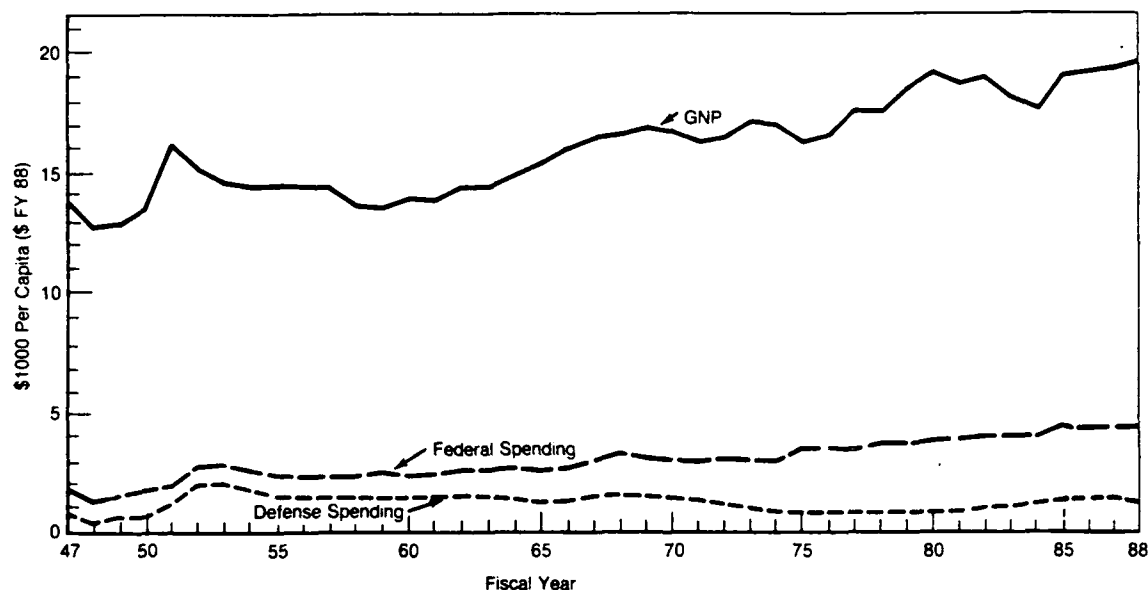


Fig. 7—Selected per capita indicators, FY47–88

index). Between 1947 and 1988 GNP per capita rose by roughly \$5,400 overall. Federal spending increased by about \$2,600 per person overall. Total defense spending grew by \$400 per person.

Consistent with the preceding figures, there is fairly unremitting per capita growth in federal spending between FY55 and the present. Over that interval, the total federal spending per capita rate grew from about \$2,300 to the current level exceeding \$4,400. In contrast, over the same period, defense spending per capita has generally declined, except in selected recent years.

Another way of looking at the more microscopic burden of defense in the society would be to examine changing defense spending per household: Because households have become steadily smaller and more numerous (ranging from 52.8 million households in 1960 to 63.4 million in 1970 to 80.8 million in 1980), the rate of spending per household would decline a bit faster than the rate of defense spending per capita—about \$4,500 per household in FY60, to \$4,400 in FY70, and then on down to \$2,350 in FY80.

To recast the data in Fig. 7 in yet another way to highlight the competition defense spending faces in light of growing nondefense spending, Fig. 8 shows the per-capita rate

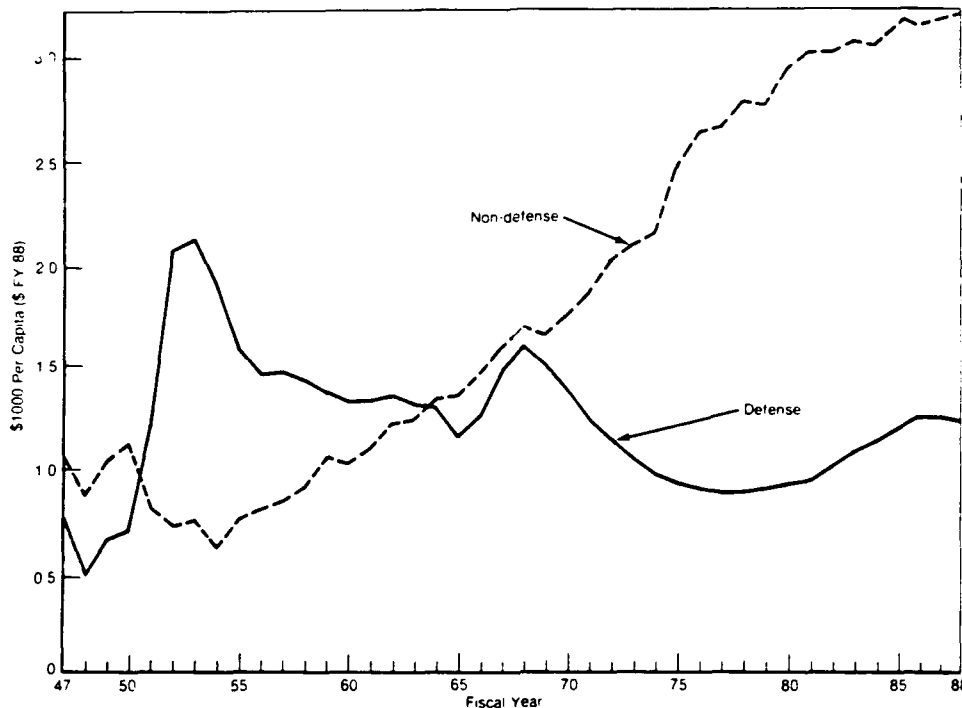


Fig. 8—Trends in defense vs. federal nondefense spending per capita, FY47-88

of federal nondefense activities (on a per capita basis) vs. defense spending per capita.<sup>51</sup> Again, this is a situation that might be described as one of nontrivial decline in defense spending per capita (with a moderate comeback taking place during the last several years of the period). In contrast, the nondefense federal spending per capita trend is described by an almost monotonically upward line. In fact, the total burden per capita of government at all levels has grown from \$3,600 in FY55, to \$4,500 in FY70, to \$6,000 in FY85.<sup>52</sup>

Between 1947 and 1988, per capita defense spending peaks three times. It rose sharply between 1950 and 1954, increasing from \$685 in 1950 to \$2,115 per person from 1950 to 1953. The second peak occurred between 1965 and 1969, when per capita defense spending rose again from \$1,150 to about \$1,500, at a rate of 7.1 percent per

<sup>51</sup>The scale used in this figure also better highlights the year-to-year changes in the per capita defense spending scale that were obscured in Fig. 7.

<sup>52</sup>As a component of GNP as a whole, these shares work out to 24.5 percent, 27.3 percent, and 29.3 percent, respectively.

year. Finally, this statistic peaks a third time as a consequence of the Reagan buildup, when it rose to a little more than \$1,060 per capita by FY87.

Nondefense spending per capita has increased more or less constantly since 1954. Before that it decreased at a rate of 6.1 percent per year, consistent with the results in Fig. 2. Since then the increase has averaged 5.6 percent each year. The nondefense per capita federal burden ranged from \$750 per person in 1955 to about \$3,250 in 1988. As before, there is a steady upward change, which averaged (arithmetically) some 5.1 percent over the entire period shown, compared with a figure of 2.1 percent for the defense spending per capita index.

Although the defense per capita share often apparently declines in correspondence with real growth per capita in nondefense spending (as seems to be the case in the 1950s and during the period 1970 through 1979), the reverse effect does not occur. At no time does nondefense spending growth per capita ever seem to experience a real loss to finance, as it were, real defense spending gains.

## **SUMMARY OF THESE LARGE-SCALE TRENDS**

Several important lessons should condition thinking about the availability of defense resources in the 1990s. In absolute terms, since the Korean War, the Defense Department's top-line has with some fidelity reflected the situation prevailing in the world. One implication of this finding is that defense spending is sensitive to domestic perception of a threat. Whatever the specific determinants of increases and declines may be, moreover, defense spending trends are a cyclical, not steady-state, proposition. It may be possible to adjust the policies and circumstances that have led to this result, but this may be harder than most suppose. However, there may be a condition of self-fulfilling prophesy at work throughout all of this: The debilitation of the U.S. military posture because of an extended period of inadequate spending (and the occasional diversion of considerable unrecoverable resources to a contingency) may lead to a more dangerous world and to public perceptions of a more dangerous international context. Avoiding going dangerously low to the point that this happens again is an important task for the DoD in the 1990s.

Since the mid-1960s, defense spending appears to have faced at least the potential of an ever increasing degree of competition from the nondefense sector of the federal budget. Unless there are substantial changes in tax legislation and perhaps some other

developments, an amelioration of the current deficit situation, or some other major occurrences, this competition can be expected to grow more not less intense in the years ahead. Demographics, momentum, politics, and many other factors virtually insure this. There is little we can do to control much of the nondefense spending superaccount. Moreover, for structural and other reasons, this figure will undoubtedly grow steadily, at least for the time being, again barring major policy changes.

Measured in several ways, the defense burden on the American economy and its people has declined steadily over time. Given the growth in the economy over all, not even the Reagan-era buildup greatly perturbed various defense burden indices. Put another way, although we spent considerably more on defense in the 1980s (compared anyway with the 1970s), the United States was a richer country and could, in some sense or other, better afford such spending.

The controllable parts of the nondefense federal budget—for instance spending on social safety net programs, which were constrained and sometimes cut back during the Reagan years—may grow in the 1990s, given current popular perceptions about the need for the federal government to act decisively to rectify problems and deal with new issues.

Finally, based on recent experience, a fairly natural level of national defense spending over the long run is a figure of \$240–260 billion, a defense:federal spending ratio of 25–29 percent, and a defense:GNP ratio of 5.5–5.8 percent. Furthermore, given movement in the cyclical defense budget over time, what is at stake in any given short-term (say, five or so year) epoch is not the whole budget, but rather more like \$100 billion at most. This will, in some sense, define the battleground in the national resource priorities debate in the early 1990s.



### III. THE HISTORICAL DoD BUDGET

This section traces certain interesting historical developments associated with movement in DoD's top-line, regardless of DoD internal priorities, or in the national policies and influences that are at work to shape the program. The metrics shown are evaluated in terms of authority and outlays alike. The data generally come from statistics on the DoD (051) budget. It is not too much to suggest that the budget has become more stable over time.

#### THE DoD BUDGET: TOA VS. OUTLAYS

Figure 9 traces the DoD budget over time, as defined in two ways: Total Obligational Authority (TOA), and outlays. Even while the two may not differ very much in quantitative terms, the difference between the two values can be quite important in policy terms because the target of political budget-cutting activities (for instance, those motivated by a desire to reduce deficits) would ordinarily be outlays. Accordingly, strong political forces can be working at cross purposes depending on the evolution of the defense and political scenario as a whole.

A larger figure for TOA than for outlays usually reflects a period during which an investment-oriented defense buildup is under way. At such a time, many weapons are being ordered that will typically involve outlays over an extended period of time (put another way, because of lead times, authority for such programs may not spend out for as many as five or more years in the future).<sup>1</sup> During periods when defense budget growth falls short of targets set in previous years, funds must be found from amounts previously authorized if outlay control becomes an issue. In these cases, the tendency is to target the fast money that typically supports military readiness.

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<sup>1</sup>It is important to distinguish between so-called fast money and slow money. The former is usually converted from authority into outlays within one or two fiscal years and includes military pay, many day-to-day operational accounts, and the like. Slow money is more characteristic of major large-scale procurement efforts. The most striking examples of slow money projects can be found in military shipbuilding: Only about 2 percent of the total cost of an aircraft carrier spends out during the fiscal year in which the aircraft carrier is authorized. See Table 3 above.

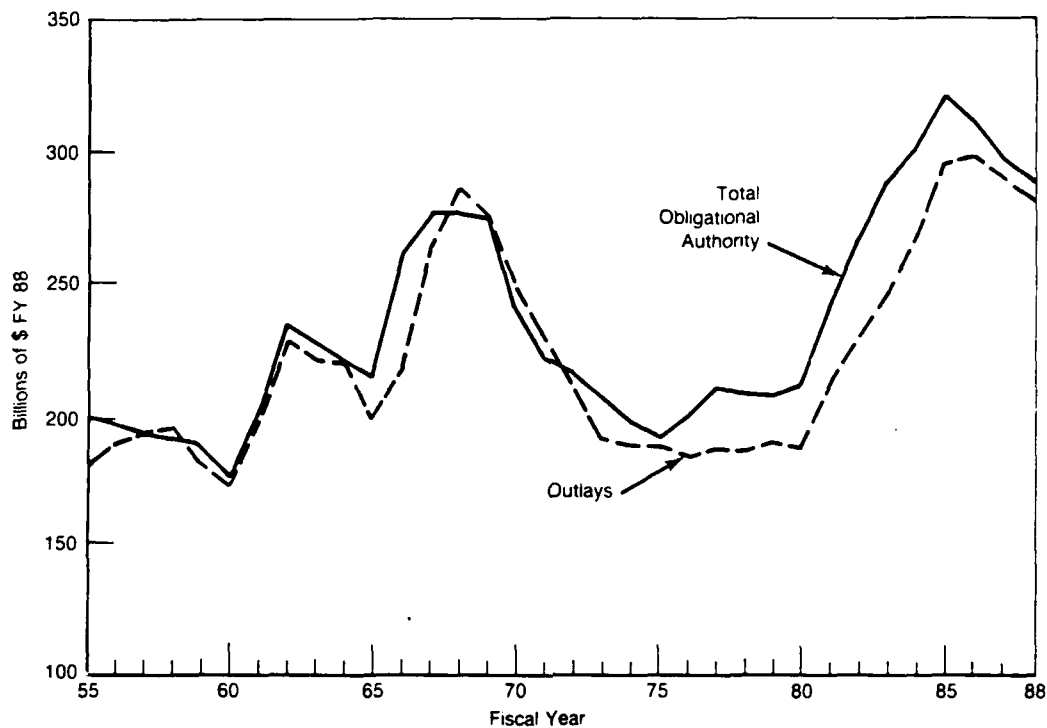


Fig. 9—The DoD budget: TOA vs. outlays, FY55–88

In general, TOA tends to lead outlays except in specialized circumstances. Just as the average value for TOA tends to be higher for any given period, so do individual years usually see TOA exceeding outlays.<sup>2</sup> In other words, during a period of relative budgetary decline, TOA may be trimmed as a matter of course, even though continuing operations, spending on systems already authorized, and other procurement programs may be taking place. Compared with a major procurement buildup (for instance, that of the first half of the 1980s), the TOA/outlay gap would ordinarily close up somewhat in these circumstances. In short, values for TOA are higher for any given period, so most individual years see TOA exceeding outlays.

<sup>2</sup>The exception typically occurs when defense budgets turn downward abruptly following a period with much procurement-related spending. Then the carry-over of funds for programs, plus a reduced current spending balance, can produce an outlay total for a year or two that is more than the authority for those years.

Between FY55 and FY88, TOA and outlays each peak several times. In the 1950s, some mild anomalies appear. Outlays rise steadily while TOA falls over a four-year period, primarily as a result of accounting differences, year-to-year politics, and the effects of the Korean War drawdown. In the early 1960s, outlays and TOA grow almost together. This does not necessarily mean that all of the TOA during this time is going to fast money accounts. Rather, it is a complex product of the coincidental phasing of many independent endeavors.

A Vietnam peak is quite evident. TOA leads outlays after FY64, chiefly because of war-related procurement. In FY68, TOA reached \$278 billion, with outlays yet higher, at \$287 billion. Outlays lead TOA as the war-related budgets draw down, reflecting the momentum of the Vietnam buildup (particularly procurement), followed by a rapid decline. In FY85, TOA reached its all time high of \$320 billion; however, outlays continued to rise until FY87—to its highest peak of \$287 because of weapon acquisition decisions made to date.

After FY71, outlays never again exceed TOA, and there is typically a considerable gap between the two. Why is the FY71–88 period so different from that of FY55–70? This is mainly a result of either modest movement in the defense budget from year to year and a low emphasis on slow money programs in the early part of this period, or else constant, steady growth, paced by procurement gains in the latter part of this period. Another effect is that of steadily expanding acquisition times for more complex modern weapons.

Outlays averaged \$222 billion annually over the 34-year period shown, ranging from a low of \$176 billion in FY60, to \$287 billion in FY87. TOA, by contrast, averages \$234 billion annually, ranging from \$179 billion in FY60 to \$320 billion in FY85. TOA exceeded outlays by the largest margin (\$42 billion) during the Vietnam buildup year of FY66. The average TOA/outlays difference over these 34 years was about \$12 billion. Not taking into account the April 1989 cuts to the FY90 budget, the final Carlucci Five Year Defense Plan (FYDP) called for \$1.48 trillion in TOA, and \$1.41 trillion in outlays, continuing the tradition of an average \$12–14 billion annual TOA/outlays gap.

Figure 9 shows the tendency of outlay peaks to lag TOA peaks, as seems logical given the fast money/slow money issues discussed earlier. Barring some sort of special case developments, typically changes in the course of the outlay trend over time lag TOA

changes by about two years (that is, an outlay peak is about two years after a TOA peak; the same is true with troughs).<sup>3</sup>

### **Consequences of a TOA/Outlay Gap for Current Deficit Reduction**

Defense planners are likely to feel a considerable pinch when they try to balance cuts between slow money and fast money accounts. Cuts in major procurement initiatives will be necessary to reduce the downstream wedge of outlays, but these cuts will not put on line useful outlay savings (perhaps only about 33–50 cents on the dollar of cuts in authority made, depending on the mix of programs being considered). It is not too extreme to imagine that a very decisive set of cuts may become necessary in the FY91–93 period, and these may involve most if not all new starts and many development programs. However, cuts will affect outlay figures immediately, but only at a cost of personnel end-strengths, and, should it come to that, in readiness (training, operational deployment levels, etc.).<sup>4</sup>

The balancing act will be an extremely difficult one, *and it must be based on a thorough evaluation of U.S. strategic requirements*. So far, there have been complaints that cuts in personnel levels, some program cancellations and stretchouts, and some major force structure units done during the FY89–90 budget drills so far have been done in the absence of any net strategic assessment of priorities.<sup>5</sup> The consequences of the current Federal budget picture, in short, have some important implications for defense planners in the future.

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<sup>3</sup>Based on the FY80 defense budget, the weighted average total TOA spendout rate was about 2.1 years; recent budgets have included more procurement, but the result does not skew the data too much. These are the origins of the two-year lag between TOA and outlays seen in this figure.

<sup>4</sup>Not all readiness cuts would yield net outlay reducing offsets: For instance, there could be increased interim costs en route to savings if defense activities are consolidated into a smaller, more efficient base structure, or if forces redeploy from forward theaters (plus pay to return those forces to their former deployment areas on short notice during an emergency).

<sup>5</sup>The Bush administration's overview strategic review of the world has reportedly missed its deadlines and has therefore not been available to planners confronted with immediate budget problems. See, for instance, Wilson, 1989, p. 17; and "The Strategy Morass," *Aviation Week and Space Technology*, April 24, 1989, p. 9.

### THE DoD BUDGET: ANNUAL CHANGE IN TOA AND OUTLAYS

While Fig. 9 showed that the defense budget fluctuates broadly even within narrow time intervals, Fig. 10 shows real annual DoD TOA and outlay growth (and decline) rates over time.

The downturn of the longest postwar defense budget growth period beginning in FY86 appears to be no isolated effect. Given the combination of declining public support of the defense effort as a whole, the specter of deficits, such other factors as a possible abrupt increase in energy costs, the inevitably higher costs the DoD will have to pay as it competes for a declining pool of entry-age military personnel; modernization inflation; and the combined effects of federal, trade, and other deficits), substantial real growth rates will probably not be seen within the next five, and perhaps the next ten, years.

The relationship between real TOA and outlay change is quite complex, according to Fig. 10. The two measures follow each other in a typically close fashion, but the

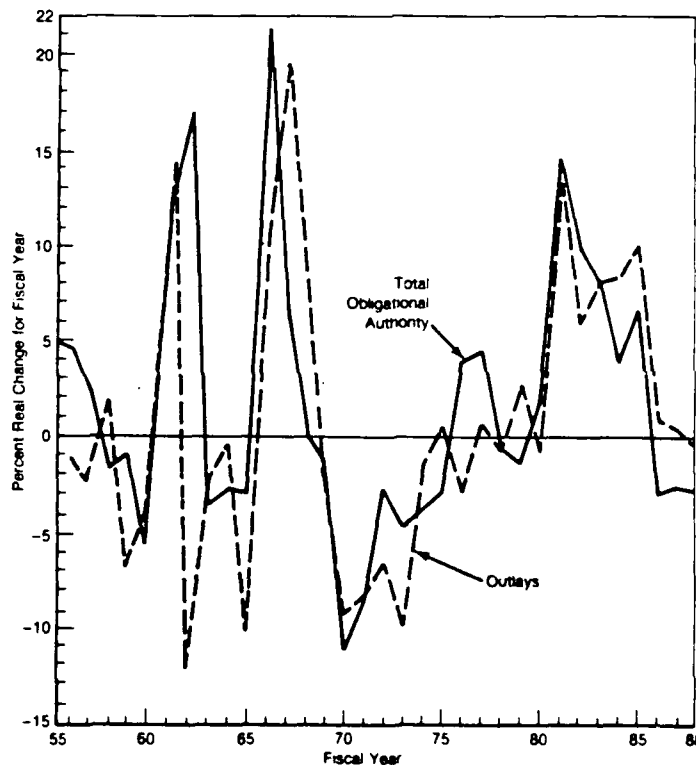


Fig. 10—The DoD budget: Annual change in TOA and outlays, FY55-88

specific relationship depends greatly on current year funding issues. As a general rule, outlay changes lag TOA changes. There is another bias, that outlay rates of change are, within a local period, somewhat lower (whether positive or negative).<sup>6</sup> This reflects the finding of Fig. 9 that the outlay trajectory over time has a slightly smaller amplitude than that for TOA, and it also reveals the effects of the phasing of fast and slow money accounts. Such findings bear testimony to the near-term interest outlays have for lawmakers interested in budget balancing. Further, the near-term, year-to-year behavior of the outlay curve is more unpredictable and more volatile than that for TOA.

### REAL YEAR-TO-YEAR CHANGE IN THE DoD TOP-LINE

Table 11 provides some summary data pertinent to Figure 10. Shown is the average annual real growth rate for both TOA and outlays, and certain other interesting information. We see that, overall, both TOA and outlays grow, at rates of 1.7 and 1.9 percent, respectively. With the exception of the earlier years, outlay change is greater (whether increasing or decreasing) than TOA growth.

Table 11 also includes some overview statistics on the tendency of TOA to change from year to year in a certain fashion. TOA growth occurs in a little less than half the

Table 11

#### SUMMARY OF TRENDS IN ANNUAL REAL BUDGET CHANGE OVER TIME, FY56-88

	FY56-61	FY62-69	FY70-79	FY80-88	FY56-88
TOA (percent)	+2.0	+4.3	-2.7	+4.0	+1.7
Outlays (percent)	+0.3	+5.7	-3.6	+5.8	+1.9
Number of FYs of real TOA growth	3 of 6	4 of 8	2 of 10	6 of 9	15 of 33
FYs wherein real TOA growth > 5 percent	1 of 6	3 of 8	0 of 10	4 of 9	8 of 33
Average TOA growth rate, excluding > 5 (percent) years	-1.2	-1.5	-2.7	-0.8	-1.8

<sup>6</sup>However, when viewed not on a year-to-year, but an epochal basis, the average changes in outlays for a block of years can be larger than the corresponding changes for TOA. See Table 11 below.

years. However, in about one-fourth of all FYs, real TOA growth is substantial—greater than 5 percent. With boom years factored out, TOA growth is in fact negative (−1.8 percent). In contrast, although defense budgets grew in TOA at a real rate of greater than 5 percent in eight of 33 years, real TOA only declined by more than 5 percent in three of those 33 years.<sup>7</sup>

The findings of Table 11 also seem to endorse the proposition, suggested earlier (for instance, in the discussion of Fig. 1), that DoD budgets, measured in authority anyway, tend to jump up but then creep down over an extended noncrisis or noncontingency period. Factoring out boom years (any FY in which growth exceeds 5 percent in real terms), the budget trend is actually downward; it takes occasional surge periods to assure anything like a long-term DoD budget growth trend. This is an exceptionally important point, since we have just concluded one of these surge periods and seem to be well into an extended period of creeping downward. It is therefore worth a closer look at this historical phenomenon.

Table 12 shows some statistics concerning the change over time in TOA (inspection of outlays would reveal the same result, if not as strikingly), first of all the distribution of year-to-year real changes in TOA. For the period inspected—FY47–89—the budget goes down in 23 years and increases in 20 years. But of those 20 years of increase, eight involve real TOA growth in excess of 10 percent in one year. Of the 23 negative years, drops of greater than −5 percent occur in only six years.<sup>8</sup>

The modal values in Table 12 most commonly decline modestly (18 years during which growth was between 0 and −5 percent per year). Real growth years are far more likely to be larger in absolute value. Years of substantial real decline are, statistically speaking, the most rare. In eight years in which real growth of more than 10 percent takes place, the average is +35.1 percent; however, if one extreme Korean War year is factored out (FY51, in which the budget grew by more than 140 percent in real terms), the average is +19.7 percent. In five years where real decline exceeded 10 percent, the average is −31.4 percent (but if we factor out two demobilization years after World

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<sup>7</sup>That is, of 33 fiscal years examined, growth was greater than 5 percent in eight years; between 0 and 5 percent in seven years; between 0 and −5 percent in 15 years; and greater than negative 5 percent in just three years.

<sup>8</sup>These results differ from those presented earlier because they include data for FY47–54, and FY89.

Table 12

PROFILE OF REAL TOA CHANGE OVER TIME, FY47-89

Number of FYs in Which Real Growth (x) was:								
	x<-10%	-10%<x<-5%	-5%<x<-3%	-3%<x<0%	0%>x>3%	3%>x>5%	5%>x>10%	x>10%
All Yrs	5	1	5	12	3	6	3	8
>FY61	1	1	4	10	2	3	3	4

Average Value of All Real TOA Changes			
	All Years	Exclude Years where x>+/-10%	Exclude Years where x>+/-5%
For all years	+2.5%	-0.6%	-0.6%
For real growth years	+16.7%	+4.4%	+3.5%
For real decline years	-9.6%	-3.0%	-2.7%
For years after FY61	+1.4%	-0.4%	-1.2%
For real growth years	+8.3%	+4.6%	+3.0%
For real decline years	-3.6%	-3.2%	-2.7%

War II, the average is -19.1 percent).<sup>9</sup> If all FYs are included, the average TOA growth rate is about +2.5 percent. But if the most extreme fiscal years are factored out (where growth exceeded  $\pm 10$  percent), the average overall rate of decline is -0.6 percent (this seems to be a representative rate of real change in budgets during years when a major buildup is not under way). Modern budgets (FY62 and later), show the average rate of change overall to be still positive (+1.4 percent). However, when the more extreme years are factored out (mainly growth years), the growth rate again turns out to be modestly negative. We should be mindful of the jump up, creep down effect given the particulars of the current budget situation.<sup>10</sup>

<sup>9</sup>In general, the most extreme values—increases and decreases alike—occur before FY62.

<sup>10</sup>Data on periods of sustained real decline are more ambiguous. In general, periods of consecutive years of real decline (or years of overall decline in which there might be an occasional small amount of real growth) are slightly longer than periods that as a whole yield substantial movement in the overall top-line. However, the presence of occasional transition periods between declines and booms makes statistical interpretation of such phenomena difficult.



## PAST DEFENSE FYDPs AND ACTUAL BUDGETS

Perhaps the most difficult factor to accommodate is the process of changing gears between a period of growth and expectations. Today's program and posture options are the product of plans completed in better defense budget times. Despite the current realities, there are some real problems involved in readjusting those expectations in an orderly fashion.

This need to balance orderly program flow and posture maintenance over time is one of the main reasons given for stable, steady-state defense budgets. There are many techniques used to achieve stability, including multi-year buys of weapons, two-year budgets,<sup>11</sup> and so on. These programs have apparently yielded considerable savings.<sup>12</sup> But more difficult is the balancing of the entire defense program over any extended period of time. That being the case, consider DoD's long-term spending plan.

The Department of Defense annually produces a Five Year Defense Plan (FYDP). The FYDPs state what the DoD thinks it will need, in terms of authority, to pay for its five-year plan.<sup>13</sup> The FYDP, then, derives from the annual JCS planning drill that attempts to reconcile U.S. commitments and obligations. Unlike the high confidence forces that the JCS estimates would be necessary to assure all U.S. responsibilities with reasonable confidence, however, the FYDP reflects financial constraints issued to the DoD by OMB and others. Those in turn are based on long-range economic forecasts, estimates of what levels of defense spending the political traffic will bear, and the like.

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<sup>11</sup>The Packard "Blue Ribbon" Commission recommended two-year budgeting; this principle was endorsed by the President in NSDD 219, and approved by Congress in Section 1405 of the DoD Authorization Act, P.L. 99-145. The first two-year budget was that of FY88/89. In contrast with previous years, the second year of each budget request is not an estimate, but rather a formal request for authorization and appropriations for DoD programs for both fiscal years.

<sup>12</sup>Savings as a result of Multi-Year Procurement (MYP) over the period FY82-89 generally ran into the \$1-2 billion per year range; MYP programs for FY90-91 are said to yield savings through FY97 of more than \$8.5 billion. See Frank Carlucci, *Annual Report to the Congress, FY1990*, p. 85.

<sup>13</sup>All executive branch departments are required by law to produce a five-year plan. For a detailed description of this process as it works in DoD, see *The Air Force Budget Process*, AFP 172-4, Hq USAF, 1 October 1987; *Army Command and Management: Theory and Practice*, A Reference Text for Department of Command, Leadership, and Management, 1988-89, U.S. Army War College, Carlisle Barracks, PA, 1988; *Joint Staff Officer's Guide*, AFSC Pub 1, Armed Forces Staff College, National Defense University, Norfolk, VA, 1986; and The Joint DoD/GAO Working Group on PPBS, *The Department of Defense's Planning, Programming, and Budgeting System*, Publication GAO/OACG-84-5, Washington, D.C., September 1983.

However, reviewing the FYDPs over time, looking at the behavior of the top-line on a year-to-year basis, and considering the forces that shape the defense budget make it easy to recognize a dilemma intrinsic to the FYDP process: a possible incongruity between the *expectations* of service and other DoD planners and the reality, which can be substantially different. As a result, FYDPs are frequently viewed with skepticism, if for no other reason than because they expect a pattern of growth in the outyears that is seldom realized. Thus, FYDPs tend to be politically controversial, and they may also lack credibility, for a very broad range of reasons.<sup>14</sup>

Figure 11 shows the successive five-year OSD budget plans considered politically tolerable in given planning cycles, as portrayed in the Secretary of Defense's annual "Posture Statements" from FY76 to FY90-91.<sup>15</sup> Overlaid upon these FYDPs (variously depicted in TOA or Budget Authority) is the actual DoD budget (in TOA) realized over most of this same interval.<sup>16</sup> Thus the difference between the first year of any five-year plan and the actual TOA (if it has in fact been finalized to date) reflects, among other

<sup>14</sup>In the early and mid-1980s, DoD's FYDPs came in for increasing criticism because of their extremely ambitious character. Senator Nunn criticized the FY88 FYDP on the grounds that it was underfunded by some \$325 billion (in current dollars). That number was based, apparently, on the shrinkage of FYDPs between FY85 and FY88 from \$1.9 billion to \$1.6 billion, a decline not accompanied by any corresponding posture cuts or program cancellations. For elaboration, see Lewis, 1987, pp. 32-33. Calculations made in 1987 indicated that with a real freeze, DoD would have a little less than \$3 trillion to spend through the 1990s. But if the budget were to decline over ten years to a level of \$250 billion, there would be some \$350-450 billion less than that total. Compared with a 2 percent increase over the 1990s, the total range of spending outcomes—the "fan" described given a growth profile of between  $\pm 2$  or 3 percent—would amount to a difference in available funds between \$750 billion and \$1 trillion. Hence, assumptions about future growth can lead into a serious funding squeeze if another outcome occurs. Secretary Cheney has "taken the first steps to tighten up the Pentagon's outyear budget projections, which critics have labeled fiscally unrealistic." See *Aviation Week and Space Technology*, June 5, 1989, p. 15.

<sup>15</sup>The "Posture Statement" is also known as the Secretary of Defense's "Annual Report to the Congress." The purpose of the document is to lay out and defend the DoD budget. Some of these FYDPs use B/A, not TOA; however, the net difference, at this level of aggregation, is very small. I have attempted to convert B/A into TOA in these figures and tables for the sake of comparability.

<sup>16</sup>The entries within this plan have all been converted into constant \$FY88. Actually, this convention introduces certain incompatibilities: When five-year plans are computed, they are usually based on *a priori* inflation projections for the outyears. These are consistent with other government budgeting assumptions. All lines in this figure are based on the real *a posteriori* DoD TOA inflator, a fact to bear in mind but one not central to this exercise.

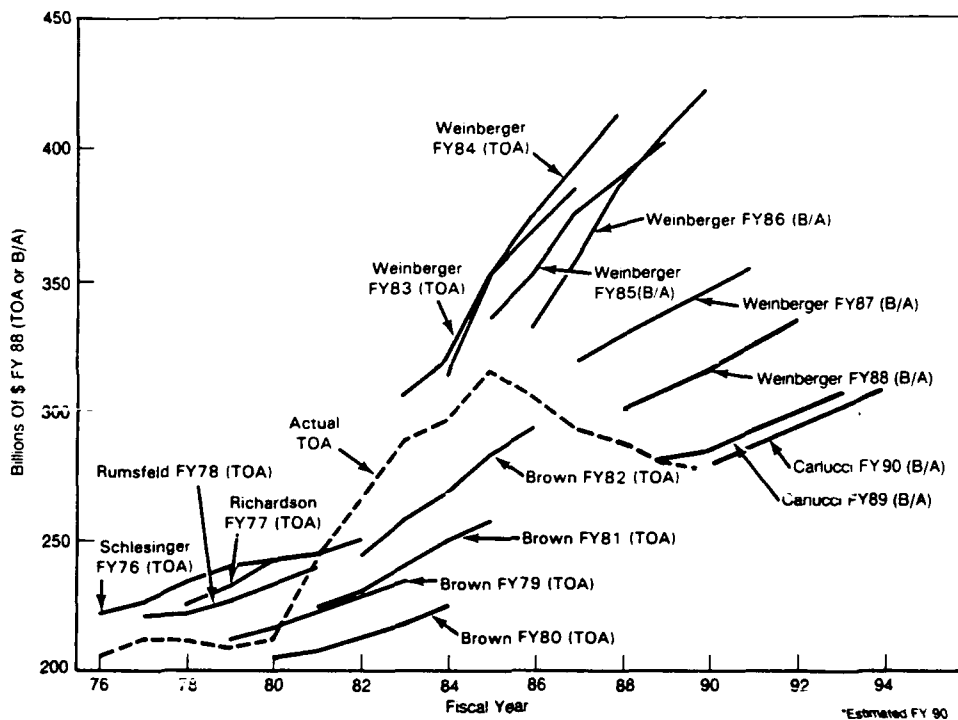


Fig. 11—Past defense FYDPs and actual budgets

things, decisions by Congress or (perhaps) a new administration to increase or decrease a request for a given fiscal year.

As Fig. 11 indicates, *projected* defense budgets are *never* expected to decline in the outyears; every year in every five-year forecast sees some level of expected DoD budget rise. What is up for grabs, rather, is the projected *rate* of DoD budget growth. In other words, the interesting things to follow in this figure are the relative slopes of the five-year plans with the actual progress of the real defense budget outcome for a given fiscal year.

The five-year projections depicted in Fig. 11 can be logically organized into four kinds of FYDP: (1) those produced between FY76 and FY78 under Republican administrations; (2) those, for FY79 through FY82, of the Carter administration; (3) the first four Weinberger DoD budgets; and (4) the final two Weinberger and subsequent Carlucci budgets.

Two things are of primary interest for the present discussion of this FYDP figure. First, the figure shows how the Reagan and Bush administrations came to perceive as increasingly dim the prospects for continuing real DoD funding growth in the future. Second, and more important still, are the current implications of what may be a widening gap between goals and reality for defense. Thus, a key issue for planners at the present time concerns the total value of the defense effort envisioned by each FYDP between FY82 and FY90 (see Table 13). Table 13 tells us that FYDP expectations during the pre-Reagan years were generally in the \$1.04–1.14 billion range, producing an average defense budget in each year of such plans of something between \$208 and \$228 billion, values certainly consistent with then-prevailing experience. After the budget takes off in FY82, so too do FYDP expectations; these jump steadily from \$1.47 trillion to almost \$2 trillion over five years, yielding budgets of \$294 to as much as \$390 billion per year, on average. These eventually come down, to only one and a half trillion for the last plan shown. Even so, these projected values are still almost half again as much as those projected in the mid and late 1970s.<sup>17</sup>

Table 13  
CHANGING FYDP EXPECTATIONS OVER TIME

FYDP for Budget Year	Total (\$FY88, trillions)	Average Planned Real Growth/Yr (%)
FY76	1.06	4.0
FY77	1.04	3.3
FY78	1.11	3.3
FY79	1.04	2.2
FY80	1.06	2.7
FY81	1.14	4.6
FY82	1.47	4.4
FY83	1.58	7.5
FY84	1.89	7.8
FY85	1.91	6.7
FY86	1.95	6.5
FY87	1.71	3.2
FY88–89	1.61	3.0
FY89–90	1.45	1.7
FY90–91	1.49	2.1

NOTE: The Revised FY89 FYDP covers the period FY88–92, including the reductions already arranged in FY88, but excludes the projected 88–89 increment.

<sup>17</sup>Since Table 13 was produced, the pattern of more realistic plans was also apparent in the FY89 FYDP. However, affordability still remains an open issue, inasmuch as cuts to coincide with the new reduced expectation-FYDPs have not appeared.

One way of seeing the adverse consequences of an expectations vs. reality gap appears in Table 14. Even if the FYDP is accurately funded—that is, the full FYDP program describes what is planned, no more and no less, with no growth expected in the cost of individual programs—we still face a shortfall if reality does not go as we expect it, which it seldom does. In fact the real outcome of FY82 through FY86 equals, in cumulative terms, the projected Harold Brown FY82 FYDP. But this is by no means a consequence of a plan's materialization. It is a property of the enormous supplementals and big budget submissions of the early 1980s (FY81 through FY83), which elevated the baseline enough to make these figures match.

Some other noteworthy findings immediately present themselves. As Table 13 and Fig. 11 showed, the earlier FYDP years (FY76–79) expect only fairly modest growth (3–4 percent). The gap between planned five-year spending and actual five-year spending is therefore modest. Then come four years in which actual five-year spending totals exceed planned FYDP values, entirely caused by the large—and unplanned—effects of the FY82 and FY83 budgets. These two years led to a substantial windfall of sorts, and an apparent FYDP surplus over this period.

Table 14  
FYDP EXPECTATIONS VS. REALITY  
(Trillions of \$FY88)

FYDP	Total Planned	Actual	Gap
FY76	1.06	0.99	.08
FY77	1.04	1.03	.01
FY78	1.11	1.10	.01
FY79	1.04	1.18	(+).15 <sup>a</sup>
FY80	1.06	1.28	(+).23 <sup>a</sup>
FY81	1.14	1.37	(+).25 <sup>a</sup>
FY82	1.47	1.48	(+).01 <sup>a</sup>
FY83	1.58	1.57	.01
FY84	1.89	1.57	.32
FY85	1.91	1.55	.36
FY86	1.95	1.50	.45
FY87	1.71	1.42	.29
FY88	1.61	1.39	.22

<sup>a</sup>Influenced by large, unplanned change in FY82 and FY83.

FYDP expectations were 6–8 percent growth, on average, between FY83 and FY86. Subsequently, the effects of more modest growth than had prevailed during the early 1980s and then, after FY85, of actual decline led to substantial deficits in available five-year defense program funds. With recent figures exceeding \$200 billion, there is an effective shortfall of an entire budget year, even if the FYDP is accurately computed (not underfunded): six years worth of program for only five years of budget. In reality, the situation is bound to be worse, not only because of possible program underfunding, but also unforeseen budget requirements (such as the Persian Gulf deployment), increased unit costs of weapons (from stretchouts and smaller acquisition quantities), and competition within the defense program posed by new enterprises.

### THE EFFECTS OF CONGRESSIONAL ACTION ON DEFENSE BUDGETS

Ultimately, Congress's decision about what share of the Executive budget request to approve reflects many considerations. Above all it *should* reflect in some sense a national consensus about whether the level of spending deemed sufficient by the administration to assure security is justified, given competing priorities. Figure 12 compares submitted Presidential budgets with actual DoD appropriations.

Congress docks the total real request throughout the period FY62–88 by an average of 4.2 percent per year. Between FY62 and FY88, there is a total change in the final DoD budget of about \$314 billion; Congress cut more than one average budget-equivalent over this period. In all, the average final defense budget ran some \$11.6 billion less than requested. The final concluded budget rose by an average of 1.2 percent. But requests rose by an average of 1.6 percent annually.

The lessons for the future are clear. On the average, Congress trims perhaps 5 or so percent from any given year's budget request. But these cuts are obviously distributed differently throughout the boom and bust defense budget cycle. One tends to find higher Congressional cuts when the budget itself resides at a higher level (whether it is going up or down), and lower cuts when the budget has bottomed out. Between FY83 and 88, cumulative Congressional cuts were more than \$140 billion, a disproportionately large reduction.

Although the budget is moving down slowly, it is still at a fairly high historical level, and if trends continue—and if a sincere effort is made to meet deficit targets—we should not rule out further cuts by Congress. Obviously, close management of resources becomes all that much more important when we are in a position of growing austerity.

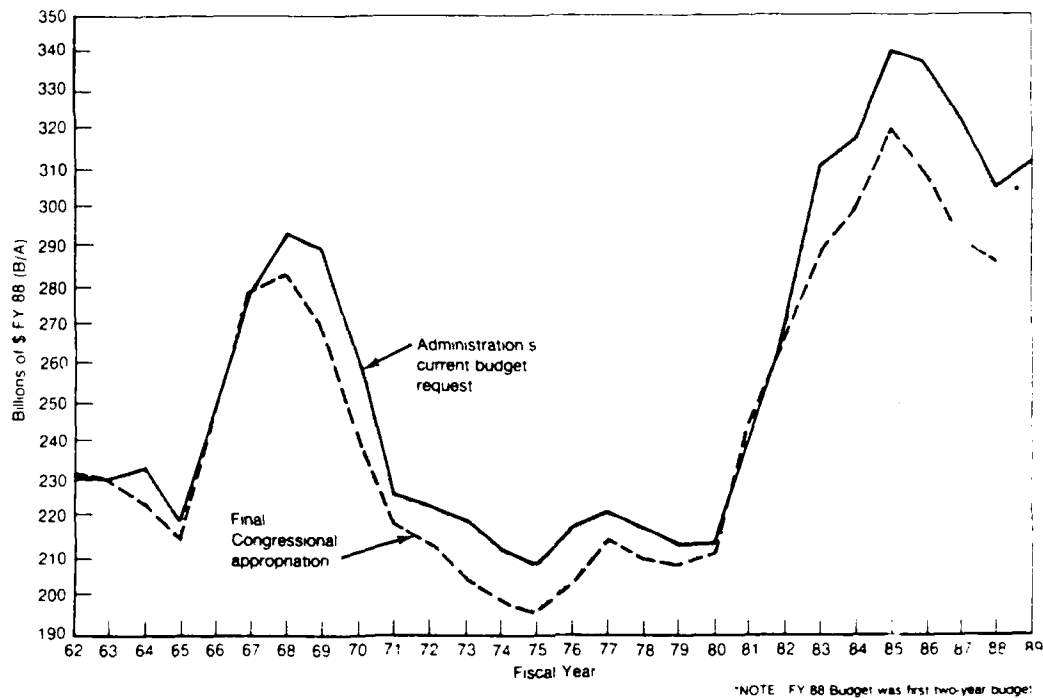


Fig. 12—The effects of congressional action on defense budgets, FY62-88

Making tradeoffs among various priorities and doing so efficiently will require adherence to a plan. Thus, all concerned should form a bipartisan consensus on defense goals and stay with these goals to the greatest extent possible.

## DEFENSE AND THE CONTROLLABLE FEDERAL BUDGET

One particular trend pertinent to the so-called politics of the defense budget bears on several of the previous figures: The relative stasis of defense spending within the federal budget in comparison with steadily growing nondefense outlays. This trend, as outlined in Fig. 13, concerns defense and its representation of somewhat controllable federal outlays.

When faced with a requirement to limit the growth of federal spending would-be federal budget cutters will first identify controllable budget line items that can be cut at a minimal political price, and also, presumably, with the most expeditious effect. As Fig. 13 shows, the defense budget has consistently represented a substantial portion of

the budget. Moreover, defense is increasing as a share of this controllable federal budget. Thus, when faced with a need to generate immediate outlay savings, OMB and others will concentrate on the defense budget cutting options before them.

Three specific trends are shown in Fig. 13. "Defense's Share of Controllable and Uncontrollable Outlays" describes that part of the federal budget represented by DoD, controllable or not. It declines more or less steadily over this period. Defense spending declines steadily from a total of between 45–50 percent of the federal budget in the early and mid-1960s down to a level of around 20 percent through the "decade of neglect." More recently, the defense slice (of federal spending) climbed back toward 30 percent. On average, defense represented 31.8 percent of federal outlays over the entire period FY62–88; since FY76, the figure is 24.7 percent.

The line entitled "Controllable Share of Total Budget Outlays" shows that in spite of the steady growth in real terms of the federal budget as a whole, less and less of that increasing budget has in fact been controllable overall. In the early 1960s, around 45

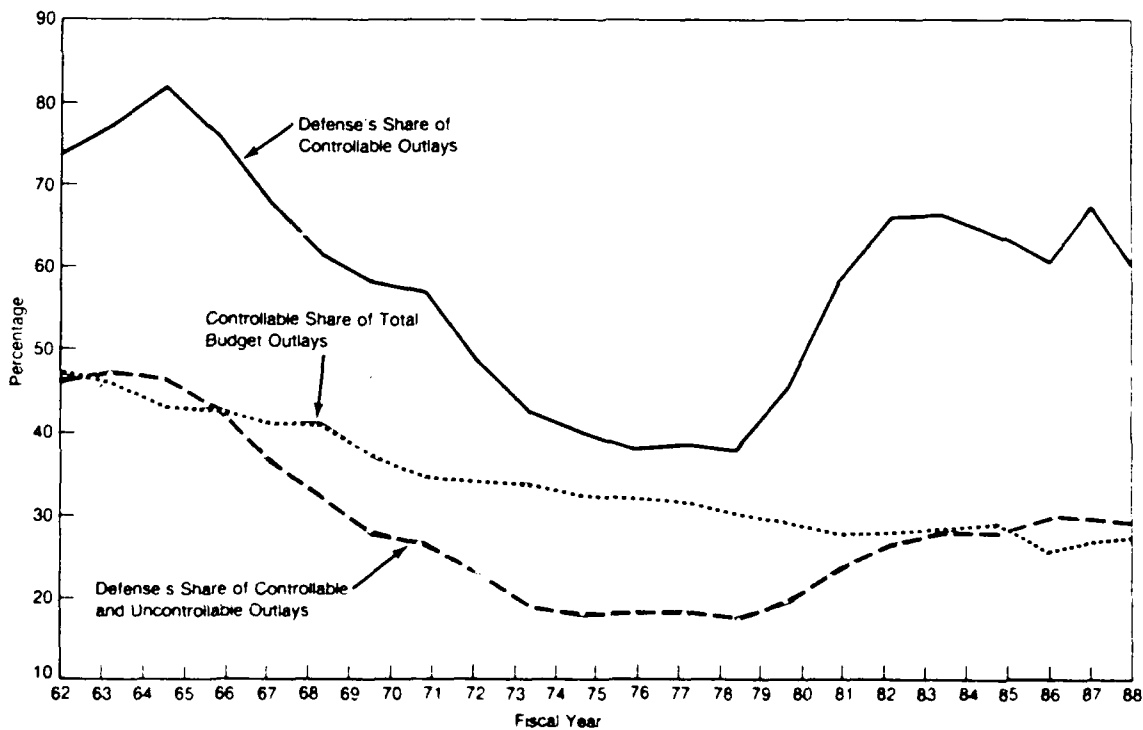


Fig. 13—Defense and the controllable federal budget, FY62–88



percent of the total federal budget was controllable; this figure had dropped to around 35 percent by the early 1970s; and in the mid-1980s, only about a quarter of the federal budget is, in fact, controllable to any reasonable extent. On average, controllable spending represented 34.1 percent of federal outlays over the period FY67-88; since FY81, the figure has been 27.7 percent.

Finally, the trend that has the most compelling policy meaning given the present political and economic environment is "Defense's Share of Controllable Outlays," which shows how defense has typically represented the substantial fraction of the controllable part of the federal budget. Through most of the 1960s, defense accounted for three-fourths of all controllable federal outlays. Between 1967 and 1988, defense's share of controllable and uncontrollable outlays declined overall, falling between 1967 and 1975 (at an average annual rate of 2.9 percent), leveling off until 1980 (annual decline of 1.1 percent), and rising slightly after 1980 (at 2.4 percent). On average, defense represented 59.4 percent of all controllable federal outlays over the period FY67-88. The figure fell from the three-fourths range in the early period to values between 30-40 percent through most of the 1970s and back on up again to two-thirds of all outlays in the 1980s.

In sum, about three-fourths of the federal budget—of which relatively little is defense—is not up for grabs even before decisions about program size and mix are tendered. Little can be done to change this proportion: If anything, the combined problem of debt service and political pressure to maintain and even increase certain entitlements almost ensure this controllable slice will decline further. Inevitably, would-be federal budget cutters or deficit reducers are attracted to defense, because it is the only way to reduce discretionary outlays in the near term.<sup>18</sup>

## **SUMMARY OF DoD TOP-LINE TRENDS**

There will be difficult tradeoffs in generating serious outlay reductions required to meet legally mandated federal budget deficit targets. Some optimum mix of hardware and fast money cuts must be determined to yield the necessary cuts now and in the

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<sup>18</sup>See the discussion on the automatic Gramm-Rudman-Hollings mechanism described in App. A. In the event of a GRH sequestration, cuts are supposed to come equally from defense and nondefense accounts. Since defense represents more than half of discretionary outlays, it does, in some sense or other, better under GRH, provided it works in the approved fashion. So far, major GRH-related budget action has taken place only in FY86, when GRH reductions cut about \$5.75 billion in outlays from the total national defense account.

future, and to balance near-term preparedness and long-term modernization and other options. This will require extremely careful coordination between national strategic goals and estimates and the total program menu.

The long-term growth profile of the defense budget is slightly upward. We are clearly now in a creep-down period. History provides little insight into the probable duration of an ultimate decline: Periods of extended decline ultimately are terminated when they yield inadequate budgets, or international developments stimulate an upturn, or, as in the 1980s, both.

Regardless of the facts of the current situations, a considerable gap exists between recent and current FYDP expectations and what the budget is likely to yield. It takes years to completely reorient such a pattern of expectations, and cutting FYDPs that envision more than just modest (or even no) real growth may lead to serious inefficiencies.<sup>19</sup> In other words, there is still considerable momentum in the program carrying over from the mid-1980s, and this momentum is bound to collide with certain realities of the contemporary budget situation. We may already be substantially overextended in some areas.

Ideally, to assure a smooth, efficient, and effective defense program, it is desirable to avoid substantial modification of that program by Congress if that modification leads to uneconomical acquisition, irrational choices, and the like. Two-year budgets and other techniques seek to accomplish some of these objectives. Above all, a bipartisan consensus on budget and program priorities should be worked out, and probably sooner rather than later.

In general, it is far easier to balance and plan for very specific parts of the total defense program over a near-term time horizon. The larger and more ambitious the plan and the longer the time horizon, the less reliable the mechanisms for achieving efficiency.

*National strategic priorities absolutely must be the basis for the sorts of decisions we are likely to confront in the 1990s.* When budgets are rising, such tradeoffs are not so difficult to make—at least politically. But when the top-line is contracting, assuring the graceful degradation of the total defense enterprise is much more important, and much more difficult.

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<sup>19</sup>We need to avoid what William W. Kaufmann has called the "attack of the termites"—nickel-and-dime cuts that do not resolve hard priorities problems, but just increase the costs of programs and delay the availability of the really important items we require.

#### IV. THE INTERNAL STRUCTURE OF THE DoD BUDGET

Within the four decades of experience since World War II, trends are generally of two types: those attributable to changing strategy (notably the movement away from heavy reliance on nuclear weapons in the 1950s toward a "flexible response" strategy), and contingent developments (either external contingencies, such as the Vietnam War, or those relating to major movement in the DoD top-line, all other things being equal). Trends are evaluated in three ways: by appropriation title, by service, and by major force program.

There are certain ratios of internal accounts (and, though not described in this Note, of forces to budgets) that tend over time to cluster around certain values and to return to them as soon as possible if they are perturbed away from their natural relationships by various factors.

##### **DoD BUDGET BY APPROPRIATIONS TITLE**

Figure 14 is a stacked portrayal of the overall DoD budget (TOA), in billions of FY88 dollars, over the period FY55–FY88. The stacked elements are the major appropriations title categories, independent of service or other categorizations. The slices in the figure are stacked so that the operational titles are at the bottom.

The bottom is the military personnel account (MilPers) and above that Retired Pay. After FY84, Retired Pay is absorbed into military personnel for accrual accounting purposes, but it is broken out here as though it were still a separate category.<sup>1</sup> Above the personnel expenses comes the title "Operations and Maintenance." Stacked above the operational titles come the so-called investment titles: Procurement; Research, Development, Test, and Evaluation (RDT&E); and finally a miscellaneous category

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<sup>1</sup>Under the FY1984 DoD Authorization Act, beginning in FY85 DoD changed the means for budgeting for retired pay. Benefits accrued by military personnel on active or reserve duty are incorporated into service military personnel budgets. This method does not affect the nature of benefits or the size of outlays, but it is intended to provide a more comprehensive and accurate indication of the total personnel burden. In FY86, the military personnel appropriation was lower than it had been earlier or later, because of a congressional decision to finance \$4.5 billion in pay raises and retired pay accrual contributions from unobligated balances of B/A from previous FYs.

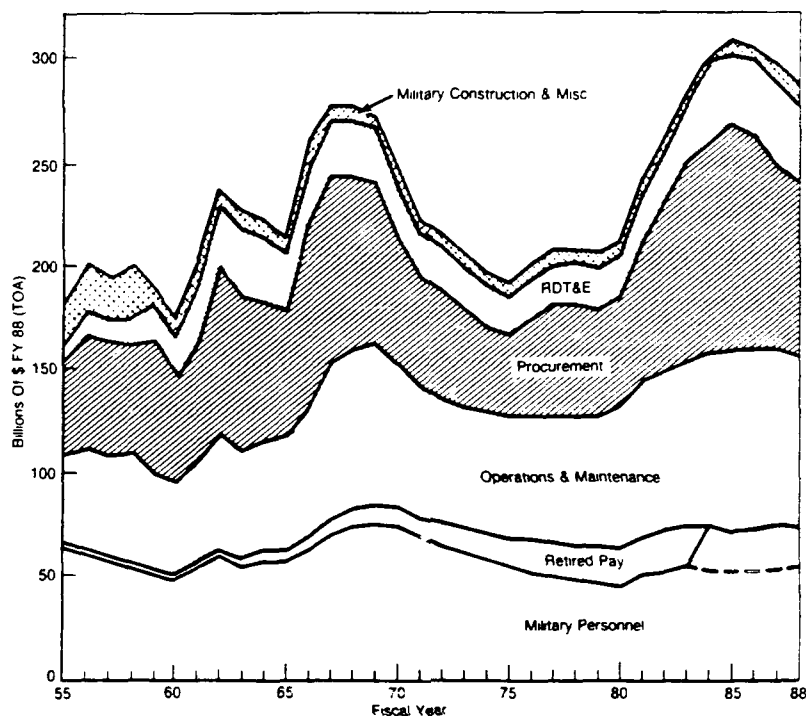


Fig. 14—DoD budget by appropriations title, FY55–88

composed largely of military construction (MilCon) but also including minor amounts of miscellaneous expenditures (for instance, Family Housing).

Table 15 shows the range of the values and average values for selected appropriation titles over the time period. Note the great spread of the data, particularly for the investment accounts. The small bounds of the MilPers account seem noteworthy

Table 15  
RANGE OF VALUES FOR MAJOR TITLES<sup>a</sup>  
(Billions of \$FY88, TOA)

	MilPers	O&M	Procurement	RDT&E	MilCon
Highest	84 (69)	87 (85)	108 (85)	39 (87)	11 (66)
Average	71	66	69	23	7
Lowest	51 (60)	47 (55)	39 (75)	10 (55)	3 (70)

<sup>a</sup>Extreme FYs in parentheses; MilPers includes Retired Pay.

given the substantial range in active personnel complements over time (from highs in FY52 of 3.64 million and in FY68 of 3.55 million to a low in FY79 of 2.02 million).<sup>2</sup> Figure 14 shows the effects of both the shift to the All Volunteer Force (AVF) and the steady growth of retired pay. The lowest pure MilPers year was FY80 (\$46.1 billion), but retired pay amounted to \$16.4 billion. By comparison, MilPers in the early 1960s routinely ran in the mid to high \$50 billions, but retired pay was less than \$7 billion. Table 15 also reveals a rather wider historical range in other accounts, especially procurement. Excluding the minor construction categories and values for years before 1962, except for procurement there is rather greater stability.

Table 16 provides some more detail on longitudinal developments in the internal mix of the DoD budget over time. As usual, the categories are shown for a variety of logically consistent budget epochs. The absolute military personnel title is fairly consistent, after the effects of the Vietnam War and the steadily growing retired pay burden are compensated for.<sup>3</sup> Without retired pay, the average cost per active serviceman remains constant over time:<sup>4</sup> Present military personnel burden can be

Table 16  
AVERAGE VALUE OF APPROPRIATION TITLES DURING SELECTED EPOCHS  
(Billions of \$FY88, TOA)

Title	1955-61	1962-65	1966-71	1972-80	1981-88	1955-88
Military personnel	58	63	79	69	74	71
Retired pay	( 3)	( 5)	( 8)	(19)	(19)	(11)
O&M	48	54	71	61	82	66
Procurement	54	70	76	49	91	69
RDT&E	16	31	26	20	32	23
Other	17	7	7	4	12	10

<sup>2</sup>Between FY47-50, active military strength resided in the 1.45-1.62 million range.

<sup>3</sup>During the Vietnam War years, the active service complement expanded from an average of 2.64 million (over FY60-65) to 3.21 million (over FY66-71); after that, it dropped again, to 2.13 million (over FY72-80).

<sup>4</sup>In fact, it grows modestly, from the \$18,000-20,000 per person range through most of the 1960s up to somewhere in the \$24,000-28,000 per person recently; it is likely to stay near those levels for the time being.

computed by multiplying end-strength by about \$27 thousand per person.<sup>5</sup> Although the military has been shrinking modestly over time, service pay and related costs and benefits have been increasing correspondingly. The net result is a constant MilPers burden.<sup>6</sup> Conversely, personnel end-strength cuts would yield modest outlay reductions, unless there are very large reductions indeed.<sup>7</sup>

The operations and maintenance category is sensitive to external requirements that involve combat or conditions of high alert, maintenance of given OPTEMPOs that may be subject to unpredictable external developments (such as Persian Gulf deployments, estimated to cost \$10–20 million per month in 1988),<sup>8</sup> and so on. Generally speaking, it is quite difficult to devise meaningful measures of merit relating O&M spending with military "preparedness."<sup>9</sup> What we have to go on, basically, is certain anecdotal information. We can relate the woeful state of readiness in the late 1970s with the spending levels of that time (averaging \$61 billion/year); compared with that is the level generally recognized as adequate during the 1980s (averaging \$20 billion higher a year).

An interesting but hard-to-quantify feature of FY72–88 is that to some extent the 1980s era O&M levels are initially committed to the undoing of underfunding of readiness during the "decade of neglect." If a proper, if not luxurious, level of O&M funding is about (say) \$70 billion a year, consistent with the testimony of military

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<sup>5</sup>Obviously, this is not the average pay of personnel over time. This figure also includes other personnel-related costs.

<sup>6</sup>Between FY62 and FY83, military retired pay grew at a rate of 6.9 percent per year in real terms (about \$670 million per year, from \$4.4 to \$19.2 billion). After that time, and in part because of the change in accounting procedure, this growth rate was retarded. The number of eligible retired military annuitants grew from about half a million in the mid-1960s, to one million in the mid-1970s, to 1.5 million recently. This trend has begun to nose over in recent years.

<sup>7</sup>For instance, cutting 100,000 men from the Army—that is, about 13 percent of current strength—would translate into annual savings of only a bit more than \$2 billion (a result that would reduce the DoD budget by less than 1 percent but require radical changes in Army organization). Per person costs could grow in real terms in the future because of demographic trends or changes in the economy, consequently driving up personnel costs at a faster than typical pace. But the increment still would probably not represent an unbearable burden and a departure from historical trends.

<sup>8</sup>See O'Rourke, 1989, pp. 42 ff.

<sup>9</sup>Typical unit readiness indices, such as the UNITREP reporting system, are widely viewed with suspicion, given the tendency under such regimes to focus on various countable parts of the posture (for instance, the number of new items of equipment or nominally functioning items) as opposed to the military *capability* of the unit or system in question.

commanders in the late 1970s, relatively modest budget savings (\$9 billion a year) accrue at the cost of potentially crippling reductions in the readiness of forces overall. Cutting readiness is a very poor way to raise large sums of short-term outlays.<sup>10</sup>

Procurement is without question the most volatile component of the total DoD budget. It is also historically the largest individual title overall; although its underfunding during the "decade of neglect" brought this title down to a level equal to the lowest of the O&M accounts, and lower than any average epoch procurement total, it was also lower than either of the operational titles *in any epoch*, with the exception of the very earliest O&M figure. As to the other investment titles, RDT&E is less likely than procurement to be scavenged in times of austerity, and somewhat more likely to be suppressed when requirements for operations, weapons, and consumables are high (as with Vietnam). The other accounts are fairly low and represent what are to some luxury items (quality of life initiatives, family housing, etc.). These are essential to the morale and performance of a modern military, of course, but they probably will suffer disproportionately as top-lines decline.<sup>11</sup>

### **Appropriations Titles In Proportional Format**

Figure 15 shows each appropriation title in terms of the percent of the defense budget it accounts for on a year-to-year basis. As before, the data are stacked, with the operational titles occupying the lower half.

First of all, note the striking relative stability of titles in proportional terms after the 1950s, with the partial exception of procurement, in spite of periodic major shifts in title values in absolute amounts that are related to top-line movement. (In other words, the increments or decrements generated by top-line movement are partitioned out proportionately among the various title budgets.)

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<sup>10</sup>O&M values do not, as Table 16 showed, fluctuate greatly over time; there does seem to be a steady upward trend over time, however. The corollary to this statement is that fairly drastic readiness problems can result if O&M falls only a little below historical levels for any given time.

<sup>11</sup>There is some indirect evidence that such "nonmilitary" outlays as facilities renovation, improved family housing and base amenities, and the like actually do play a kind of deterrent role. Soviet visitors—exposed to routine U.S. base operations as a result of on-site inspection in support of arms control treaties—have reportedly returned to the USSR with unsettling news of the high quality of American service life, compared with the primitive conditions in Soviet barracks and kasernes. This has prompted numerous disgruntled letters to the editors of Soviet military journals and, it seems, a degree of heightened respect for the quality of the U.S. military establishment.

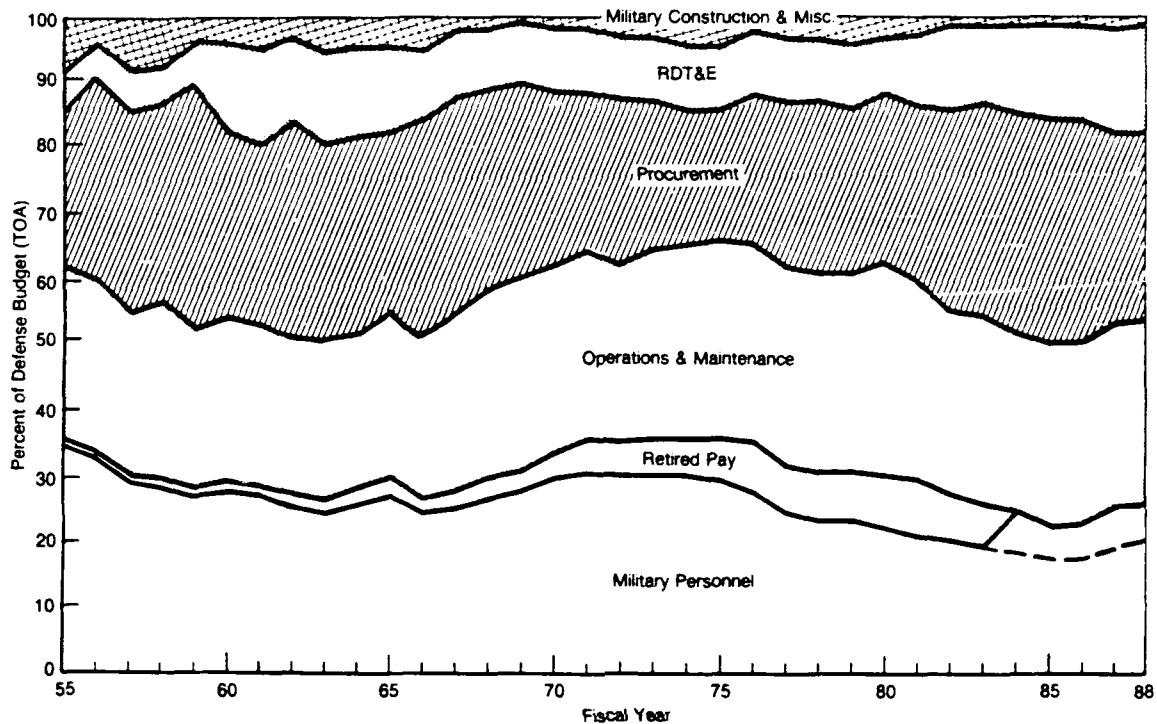


Fig. 15—DoD budget by appropriations title, FY55–88  
(Percent)

Second, a general stability in the balance between the aggregate operational and investment categories is quite clear. Investment amounts to close to half of defense spending in those years of high defense budgets in which there was no pressing combat requirement. In any case, investment as a whole has never exceeded 50 percent of defense TOA. Put another way, the operational accounts grow somewhat in proportional terms in lean times as a result of the fact that procurement is cut in times of tight defense budgets; thus, operational accounts tend to exceed 50–55 percent only during lean budget years. This probably follows primarily from the priority we have placed on the maintenance of existing force structure, even during times of great austerity.

Third, RDT&E is fairly constant over time, at least after 1960. This may well be because there is no formula for computing the "correct" amount of RDT&E spending. In



lieu of any manifest set of deterministic requirements, it seems as though we have recently been "gating" one-tenth of the budget for RDT&E.<sup>12</sup>

The total personnel account, including retired pay, holds steady for most of the period shown. A rise in theater combat force strengths for Vietnam requirements disappears relative to the total budget allowance for that conflict; the force decline of the 1970s is apparent (despite the prophesies of AVF doomsayers); and the inexorable rise of retired pay is likewise clear. In retrospect, both MilPers (including retired pay) and O&M are not very volatile, with ranges over this period of 28–31 percent and 24–30 percent, respectively.

Between FY55–88, military personnel and retired pay together made up the largest percentage of the defense budget, averaging 31 percent annually. Procurement made up 28 percent of the budget, O&M made up 28 percent, and RDT&E made up an average of 10 percent. (As noted, R&D is a sort of constant in this regard: Since the mid-1960s, RDT&E moved out of the 9–11 percent range only in FY86 when it climbed to 12 percent.) Rounding out the investment category, construction and miscellaneous accounts are always minor (with the exception of certain early periods in which much construction, a lot of it related to strategic infrastructure, occurred). To reiterate, only procurement is relatively volatile: It has ranged from a high of 33–34 percent (in the early 1960s and the early 1980s) to the low 20 percent range during the early 1970s.

Table 17 shows that the deviation to be found even over the long haul between the averages of the values is low—at most  $\pm 2$  to 4 percent from the mean. In other words, there are no fluctuations in budget share during epochs that were seen with the absolute appropriations titles figures (notable procurement). These statistics are useful signposts for the possible future distribution of the budget by these categories should it decline in the 1990s.

### **A Close-Up View of the Investment Titles**

There is obviously considerable interest among defense planners in how much of the defense budget as a whole goes into the investment appropriations titles. These, after all, are the accounts that permit force modernization, are essential to counter superior adversary quantitative advantages with superior weaponry, and even hold out some hope for occasional posture expansion initiatives.

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<sup>12</sup>Personal communication with William Perry, former Under Secretary of Defense for Research and Engineering.

Table 17  
PROPORTIONAL CONSTITUTION OF BUDGET DURING SELECTED EPOCHS  
BY APPROPRIATION TITLE  
(Percent of TOA)

Title	1955-61	1962-65	1966-71	1972-80	1981-88	1955-88	1966-88
Military Personnel	31	28	30	33	27	31	30
Retired pay	( 3)	( 2)	( 3)	( 7)	( 7)	( 5)	( 6)
Operations and maintenance	25	24	28	30	28	28	29
Procurement	29	31	29	24	31	28	28
RDT&E	8	14	10	10	11	10	10
Other	7	3	3	3	3	3	3

Figure 16 summarizes the preceding two figures to show some of the pertinent details. It provides a look at the absolute and relative scales of effort being put into the modernization and expansion of the force structure. It also provides some insight into

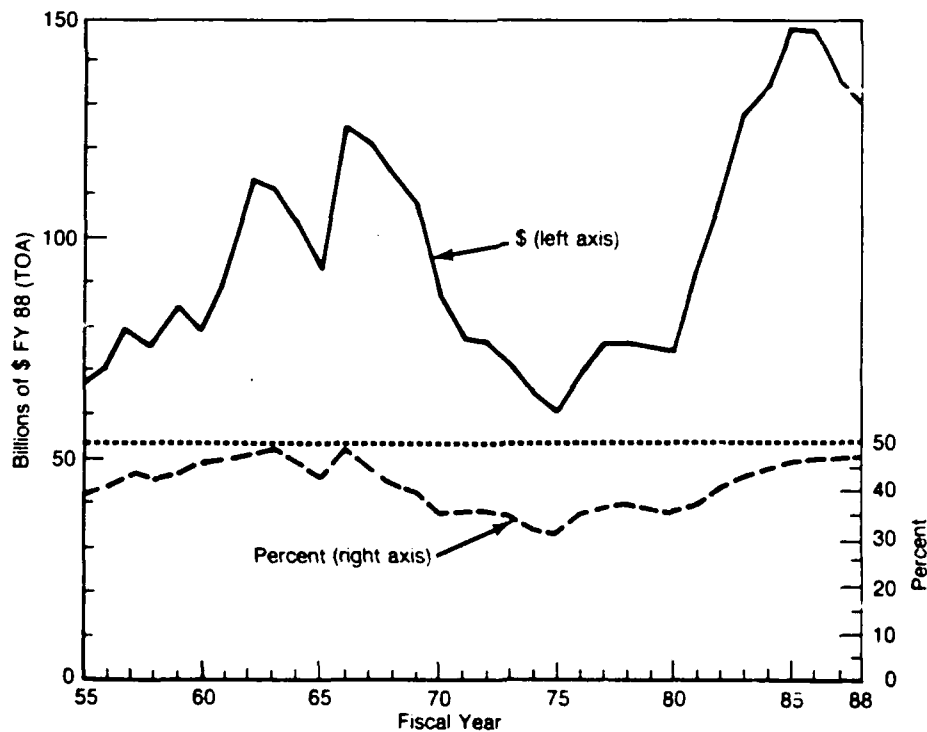


Fig. 16—Investment appropriations titles compared with total DoD TOA, FY55-88

the amount of money obligated to make available future technological options. The dashed line shows the investment appropriations titles as a percent of the entire DoD budget. The investment titles come close to being 50 percent of the DoD total budget only during what might be called good years for the defense budget as a whole—some of the early 1960s (before Vietnam War operational expenses began to take their toll) and again during the Reagan administration buildup.

The solid line shows the absolute amount being spent for the investment accounts. Investment in absolute terms moves from the \$95–130 billion range in the early and mid-1960s down to a low in the \$69–75 billion range through most of the mid-1970s and then up to unprecedented levels exceeding \$135 billion during the Reagan administration defense buildup.

The share of the DoD budget made up of procurement, RDT&E and MilCon, as well the absolute amount obligated on these, rose generally from FY55 to FY62, from 39 to 48 percent, fueled chiefly by steadily increasing spending, first, for R&D, and then by weapons procurement. Following a major series of both strategic and general purpose forces development, this share declined steadily as the requirements of the Vietnam War intervened. However, absolute spending on the investment titles grew from FY65–68 (from \$93 billion to \$116 billion); as the war wound down, this figure fell to a level of about \$78 billion in FY71. Investment declined thereafter as both an absolute and relative component of the total defense effort. Between FY65–67, investment had averaged about 46 percent, but after FY67, it dropped from 42 percent to 32 percent in FY75. Between FY76–86, it rose by 1.5 percent annually, to a total of 48 percent in FY85, after which it began to decline, to 46 percent by FY88. All in all, investment spending averaged \$102 billion annually, ranging from \$62 billion in FY75 to \$149 billion in FY85. Investment averaged 41 percent of the DoD budget annually over the entire period, FY55–88; as a share of the total DoD budget, investment ranged from 32 percent in FY75 to 49 percent in FY63 and FY66.

#### **Remarks on the Procurement Account**

Figure 17 shows the relative volatility of the procurement title compared with the DoD top-line *less* procurement, in TOA. For all years in the period FY62 through FY88, the relative value in each FY is compared with the value of each category of expense in its lowest fiscal year during this period (that becoming the baseline of 1.00). For both curves, the 1.00 baseline occurs in FY75.

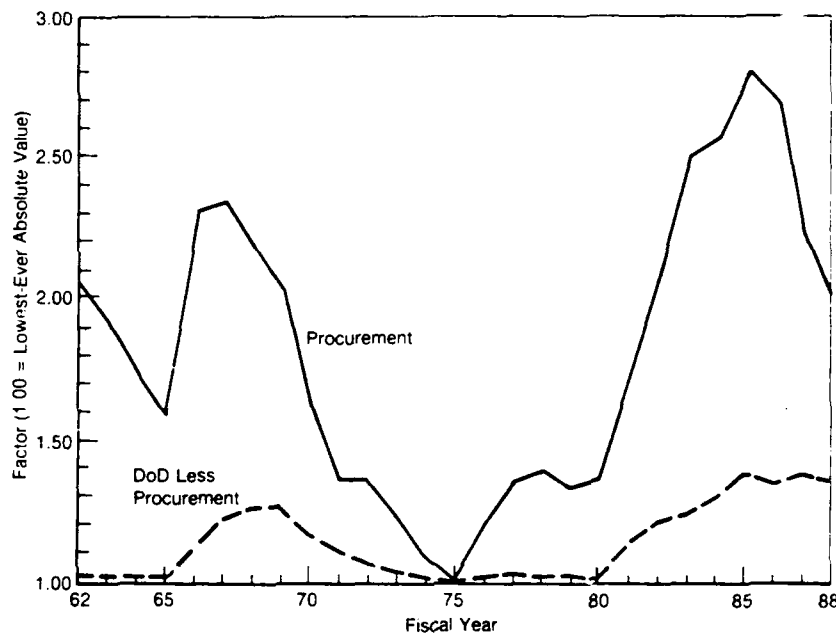


Fig. 17—The volatility of procurement compared with the best of DoD, FY62-88

The value of the DoD-less-procurement account never fluctuates beyond a maximum value of 1.4, that is to say, DoD-less-procurement in its best year is less than 1.4 times as large as that value in its worst year. But with the procurement curve, the values can go as high as 2.8 times the lowest value of the total period; and there are several years in which the value exceeds the figure of two times the lowest value. This demonstrates obliquely that "when change is happening," it is change in procurement that is going to be most striking in a relative sense (notwithstanding the fact that the DoD-less-procurement account is usually about twice as large on an absolute basis).

Figure 17 reveals the degree of dynamism in procurement compared with that in other defense undertakings. The implication for the future is that, if previous trends continue, there may be disproportionate effects on procurement if the top-line moves around abruptly. Roughly speaking, if DoD's overall top-line begins to decline from a FY85 baseline of, say, \$320 billion (in \$FY88), and if \$108 billion was then procurement, and the steady rate of real decline in the top-line (less procurement) were to be -2 percent real with procurement declining (say) twice as fast, then in five years the DoD-less procurement value will have fallen to about \$197 billion, whereas procurement

will have shrunk to \$92 billion, yielding a total DoD budget of \$289 billion.<sup>13</sup> The point of this exercise is to demonstrate that a greatly disproportionate slice of the budget decline since FY85 has come from the procurement account (which began, in FY85, as a little more than one-third of the total DoD top-line, but in the process of declining to one-fourth of the total DoD budget). The prospect that procurement will decline substantially more quickly than other DoD accounts looms as the largest management problem confronting the DoD in the potentially austere early 1990s.

How, specifically, does this dynamism in the procurement account relate to dynamism in the defense budget as a whole? Figure 18 compares the real change in all

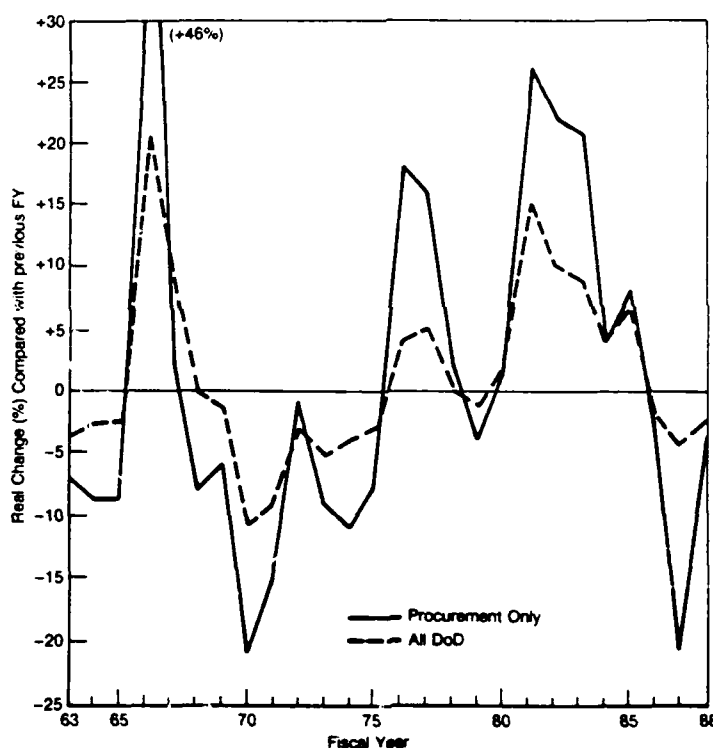


Fig. 18—Relative year-to-year dynamism of procurement vs. DoD's top-line, FY63-88

<sup>13</sup>These numbers describe the fate of the DoD budget top-line as a whole, but they conceal the fact that, for procurement, the situation is worse already. The decline in the DoD top-line since FY85 has been roughly \$42 billion (a real decline of about 13 percent). However, the corresponding reduction in procurement has been almost \$33 billion (more than 42 percent). Consequently procurement has suffered the lion's share of budget cuts since the down-turn in defense spending began.

FYs (FY63–88) in DoD's top-line against the change in the procurement top-line. For instance, the FY66 top-line was 21 percent greater than the FY65 top-line, whereas FY66's procurement spending was 46 percent greater than FY65's figure. Only in FY67 (when operational requirements for Vietnam grew so much compared with previous needs), in FY72 (during the wind-down of the war), and in FY80 (when the battle against posture hollowization was on) is the following cardinal rule broken: When DoD budgets grow in a given FY, procurement grows at a substantially higher rate; when DoD budgets decline in a given FY, procurement declines at a faster rate.

Procurement outperforms or outcrashes DoD in just about every year. In the 16 FYs in this interval in which the DoD declined in real terms by more than 1 percent, its average rate of decline was about -4.0 percent. But in the 15 FYs in which procurement declined in real terms, its average rate of decline was about -9.1 percent. In the 11 FYs in which the DoD grew in real terms by more than 1 percent, the average rate of growth was 7.6 percent. In the 12 FYs in which procurement grew in real terms, its average rate of growth was 13.8 percent.<sup>14</sup>

Procurement is, in some sense, the "slack variable" of the DoD. Regardless of the direction of budget movement, procurement authority is the most affected component within the DoD budget by top-line change. Procurement patterns do vary internally by service or function, and often substantially so, but in the aggregate, they are consistent over time.

An examination of the procurement funding record over the period FY62–88 on a by-service basis will demonstrate certain basic traits of the procurement budget on a more microscopic level. Figure 19 shows absolute amount spent for procurement by each service. USAF and USN procurements are roughly the same in absolute dollars in every year whereas, except during the Vietnam years, the Army gets only about half of what the other services get. This 2:2:1 ratio is pretty constant—local fluctuations tend to be explainable in one-shot terms (e.g., the FY83 Navy figure is substantially skewed by the purchase in that year of two *Nimitz* CVNs, at a total price of around \$7.5 billion or so). The USAF and USN are substantially more capital-intensive services than the Army. The Navy procurement slice stays fairly constant over time probably because of several large individual titles that can be phased together (SCN, aircraft, etc.). The

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<sup>14</sup>The total arithmetic average growth rate for all DoD (including procurement) was about 1.5 percent over the period FY62–88. The corresponding figure for procurement is around 1.1 percent. But these trends must be qualified in light of the booms and busts.

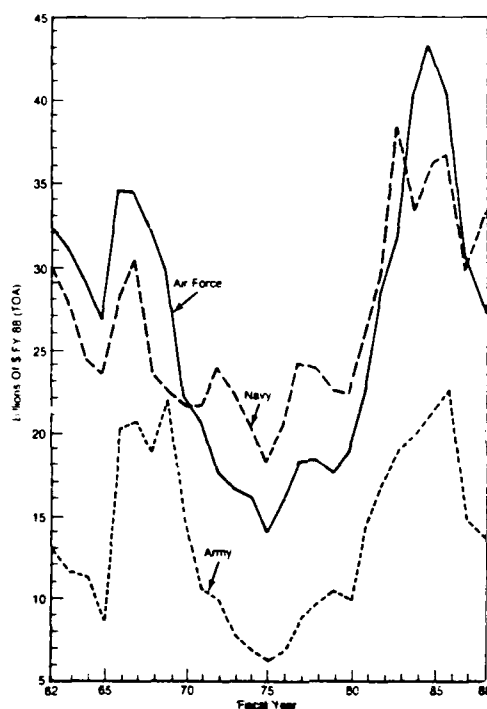


Fig. 19—Service procurement budgets, FY62-88

movement of the Army budget slice dedicated to procurement over time is driven by Vietnam and the Reagan buildup.<sup>15</sup>

The USAF curve also shows these influences, but it contains an anomaly worth mentioning. The USAF budget share for procurement is *less than* the Navy's over nearly all of this period, especially during the early 1960s. The main reason for this probably is

<sup>15</sup> A more detailed evaluation would show that, historically, the Army and strategic forces have been relatively more vulnerable over time to near-term procurement fluctuations, especially downward movement, though for very different reasons. The Army's vulnerability probably results from their few truly big ticket procurement programs; programs that tend to buy small items in large numbers; not very sensitive programs; less problems with catastrophic block obsolescence; and (perhaps) not as good a political constituency as other services. For strategic forces—and with the very noteworthy exception of the Reagan buys seeking to close a reported "window of vulnerability"—these have for most of the period evaluated been seen as less pressing priorities given U.S. strategic priorities. Moreover, there have been many opportunities for effective marginal improvements to the posture that do not require major new launcher acquisition.

that the USAF tends to spend more of its investment budget on RDT&E than the Navy. That being the case, the fact that the USAF actually overtakes the Navy (by this metric) at the end of this period is noteworthy.

### On the Reagan Windfall: How the Recent Past Stacks Up

Table 18 shows that procurement benefited most, in some sense, from the increased funding generated during the Reagan buildup. This is a consequence of several factors, including the high priority placed on procurement in general;<sup>16</sup> the requirement to undo, in effect, the consequences of deferred modernization in the "decade of neglect"; the simultaneous arrival at a procurement stage of many major weapons programs; the need to buy weapons to support force structure expansion; and certain add-on procurement buys, particularly in the strategic nuclear and strategic mobility areas.

One cannot stress too much the anomalous aspects of the Reagan windfall. This should not be taken as any criticism: The period FY65-75 was disastrous for procurement first because of a diversion of resources to Vietnam, and second because of

Table 18

WHERE THE "WINDFALL" WENT: TOTAL SPENDING BY TITLE<sup>a</sup>  
(Billions of \$FY88, TOA)

Title	Cumulative, FY75-80	Cumulative, FY81-86	Constitutes What % of the Total FY81-86 Delta?
Procurement	296	555	55
RDT&E	121	179	12
Military Personnel	398	437	8
Operations & Maintenance	376	488	25
Total, selected titles	1190	1658 (+468B)	100

<sup>a</sup>Excludes FY7T; includes Retired Pay in MilPers; excludes minor titles.

<sup>16</sup>Kaufmann and Korb (1988, pp. 7-9) describe an additional aspect of the procurement emphasis so far as future budgets are concerned: "continuing to buy the current generation of weapons and acquiring the next generation of systems now under development could cost \$1 trillion." (Weapons in the defense pipeline would cost, between FY90 and FY99, about \$1,007 billion.) "It is little wonder," they add, "that Secretary Weinberger foresaw the need for average real increases in budget authority of 7 percent a year and a fiscal 1986-2000 defense program of \$2 trillion."



the underfunding of the 1970s.<sup>17</sup> The bottom line is that all category totals are bound to come down, like it or not. It is probable that procurement will not be driven by any plan but by DoD top-lines. The crucial task then becomes one of prioritization.

Even if defense budgets do not decline below a certain level in real terms, certain fact-of-life problems associated with the phenomenon of *superinflation* must be considered. Superinflation refers to the real growth over time in the costs of buying and maintaining a fixed component of posture (an alert collection of nuclear weapons, a Tactical Fighter Wing, a ship of some type, some amount of ship tonnage, an armored division, etc.).<sup>18</sup> Depending on buy rates, type of weapon, scheduled lifetime for the weapons bought, and many other factors, superinflation appears at the rate of between 1 and 6 percent per year. At a rate of 3 percent real growth per year in a given type of weapon, the cost of replacing that weapon could basically double in about 24 years. If the projected lifetime of that weapon is 20–30 years, each new generation of weaponry of a given class could cost twice what its predecessor did. This consideration must be kept in mind as planners confront the harsher budgetary situation likely to be found in the 1990s. Indeed, managing such tendencies will be an important DoD priority, regardless of the direction in which the top-line or internal DoD mix may move in the future.

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<sup>17</sup>Despite the great increase in funding for procurement during the Reagan period, in many important categories, fewer major weapons were bought than in previous times, primarily because of the emphasis of the Reagan administration on high-end weapons (there is also more in the way of "covert" spending for procurement). For instance, between FY75 and FY80, the USAF bought some 1,600 fighter-attack aircraft; but in the next six-year period, the total buy was only a little above 1,200 in spite of a much higher MFP II procurement account for USAF. The reason, clearly, is purchase of many low-end aircraft (notably A-10s) during the Carter years. The same is true for Navy combatant ships, general purpose and strategic alike: Between FY75–80, the USN ordered 73 ships; between FY81–86, they ordered 54. As before, the difference is the emphasis on quality: More low-end ships were bought earlier, and more high-end ships were bought in the second block of years.

<sup>18</sup>There are many reasons why a fixed posture should escalate in cost. Probably the most important of these forces is the steady growth over time in the cost of technology of the major force elements that replace old ones. These may do more things, and do them in a more demanding environment, but the costs of follow-on systems has grown steadily over time. See Dews et al., 1979; and Rich et al., 1986.

## CONSTITUTION OF THE DEFENSE BUDGET BY SERVICE

Figure 20 is a stacked portrayal of the absolute share of the defense budget by service, shown for a period extending back to FY46. Some interesting topographical features of the figure are the creation of the U.S. Air Force as a separate service in 1947 and also the rise of a separate defense-wide/OSD/OJCS budget slice,<sup>19</sup> beginning with the McNamara years.

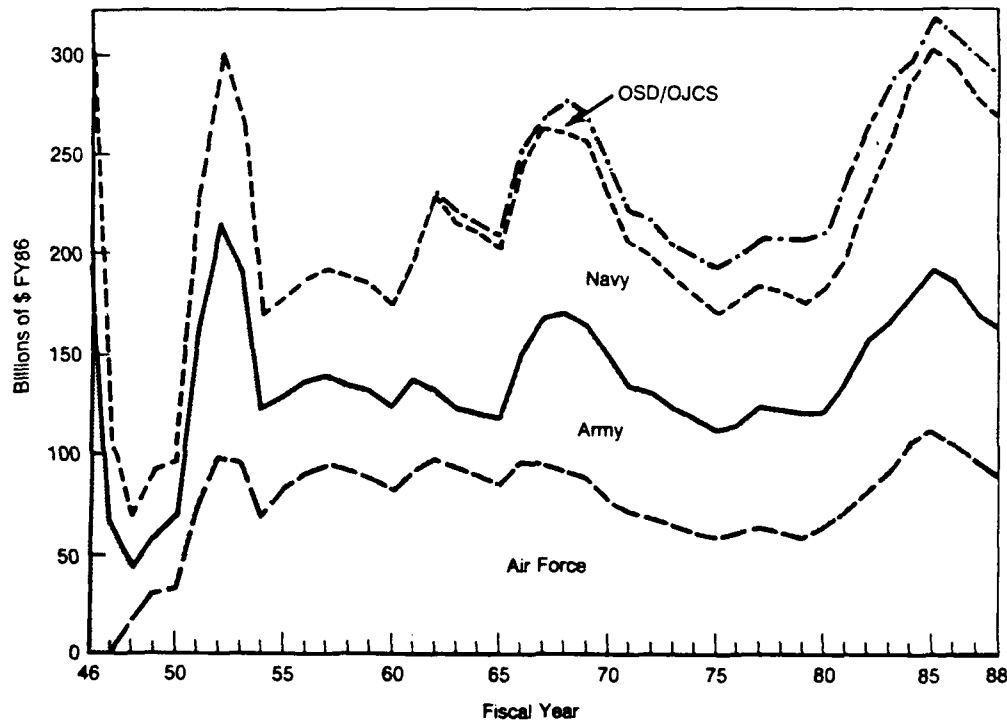


Fig. 20—Constitution of defense budget by service, FY46–88

<sup>19</sup>These defense agencies and other organizations have had two primary purposes: to consolidate disparate, parallel service functions into more effective and efficient "clearing-house" agencies (such as intelligence, logistics, etc.); and to provide DoD-wide oversight of new or growing areas, particularly technological ones (as with nuclear weapons, communications, SDI, etc.). Some of the more important of the defense agencies are the National Security Agency (NSA, 1952), the Defense Advanced Research Projects Agency (DARPA, 1958), the Defense Nuclear Agency (DNA, formerly DASA, 1959), the Defense Communications Agency (DCA, 1960), the Defense Intelligence Agency (DIA, 1961), the Defense Logistics Agency (DLA, formerly DSA, 1961), the Defense Security Assistance Agency (DSAA, 1971), the Defense Mapping Agency (DMA, 1972), and the Strategic Defense Initiative Office (SDIO, 1984).

Before 1980, in peacetime years, defense budgets grow or fall at fairly modest annual rates on a service by service basis, and a service could be reasonably certain that next year it would have the same real budget it had this year,  $\pm$  \$5 billion. The single peacetime exception has been the keagan buildup, in which budget jumps have seemed like wartime ones: in FY83, for instance, the Navy had a budget almost \$12 billion larger than it had in FY82; in FY84, the Army's budget was about \$11 billion greater than it was in FY83; and for the same years, the Air Force's jump was a remarkable \$16 billion, fueled primarily by one-time buys of strategic nuclear and strategic mobility systems. A question of considerable analytic interest concerns the relative efficiency with which the services can absorb such jumps; however, that matter is beyond the scope of this Note.

Some summary data are given in Table 19. Since FY48, the Air Force has had the highest average annual budget (\$78.4 billion), ranging from \$19 billion in FY48 to \$111 billion in FY85. The Navy budget averaged \$69.4 billion annually, ranging from \$26 billion in FY48 to \$111 billion in FY85. The Army budget averaged \$62.0 billion and ranged from \$41 billion in FY60 to \$120 billion in FY52. Defense-wide spending averages \$14.0 billion.<sup>20</sup>

After FY48 the new Air Force budget (within the new DoD) increased faster than Army or Navy, at an average annual rate of 6.8 percent. Much of the increase took place between FY49-52, when the Air Force budget increased by 58 percent annually. After

Table 19

AVERAGE VALUE OF SERVICE BUDGETS DURING SELECTED EPOCHS  
(Billions of \$FY88, TOA)

Organization	1948-50	1951-53	1954-61	1962-69	1970-80	1981-88	1948-88	1962-88
Army	28	103	46	71	57	74	62	56
Navy	29	77	53	73	68	98	69	78
USAF	27	88	85	92	63	94	78	81
DoD-wide	—	—	3	13	23	24	14	20

<sup>20</sup>The figure for defense-wide spending tends to grow steadily over this whole period; its *rate* of growth and, only recently, its absolute amount have declined, first because of the change in methods used to account for retired pay and then because of the overall defense downturn (a key component of the defense-wide account—the SDI—has suffered in relative terms in recent years).

FY52, it decreased at a fairly constant rate until FY70, mainly because of movement away from reliance on nuclear forces. Between FY70–80 it declined by an average 4.4 percent (\$3.1 billion) annually. Between FY80 and FY86, it increased by 9.3 percent annually. The Army budget increased, between FY49–52, by 59.2 percent annually on account of the Korean War. Another sharp increase occurred between FY66 and 68, when Vietnam requirements led the Army budget to rise by an average of 21.5 percent per year. After 1980 Army budgets increased by 8 percent (\$4.5 billion) annually until peaking in the mid-1980s. Between FY49–52, the Navy budget increased at an average rate of 46.1 percent. From FY66–68 it increased by 6.7 percent. After FY80, the Navy budget increased again by 7.4 percent. Patterns of real decline for all services took place after Korea (except for USAF), and throughout the 1970s.

### **Service Budgets by Proportion**

Figure 21 shows a stacked portrayal in proportional format of the total DoD budget over time, taking the form of the proportions of the defense budget represented by each service. The Air Force rose rapidly during the years of Massive Retaliation then gradually declined as the general nuclear deterrent mission was reduced in importance and distributed in part to the Navy by means of the fleet ballistic missile program. After the Korean War the Navy maintains quite a stable share of the total defense budget. In some sense, then, the rise of the OSD and OJCS accounts comes at the expense of the combination of the Army and Air Force accounts.

When budgets grow or compress, service budgets tend to rise or fall together. Historically, the only exception to this rule comes during that period when Flexible Response replaced Massive Retaliation as a deterrence strategy, at which point the Army essentially picked up 5 percent of the budget out of the USAF's hide. An interesting corollary observation is the relative stability of the Navy. Regardless of the shifting winds of policy or strategy, Navy budget shares tend to be pretty stable from year to year.

Between FY48–88 the Air Force averaged 35 percent of the total defense budget; the Navy averaged 30 percent; the Army averaged 28 percent; and defense agencies and other DoD-wide accounts, 7 percent. In the more recent past (FY62–88), the figures are almost identical, the only difference being that DoD-wide spending is a bit higher—apparently at USAF's expense. Over the entire period, the Air Force share ranged from 28 percent in FY48 to 48 percent in FY57. Between FY48 and 88, the Navy share

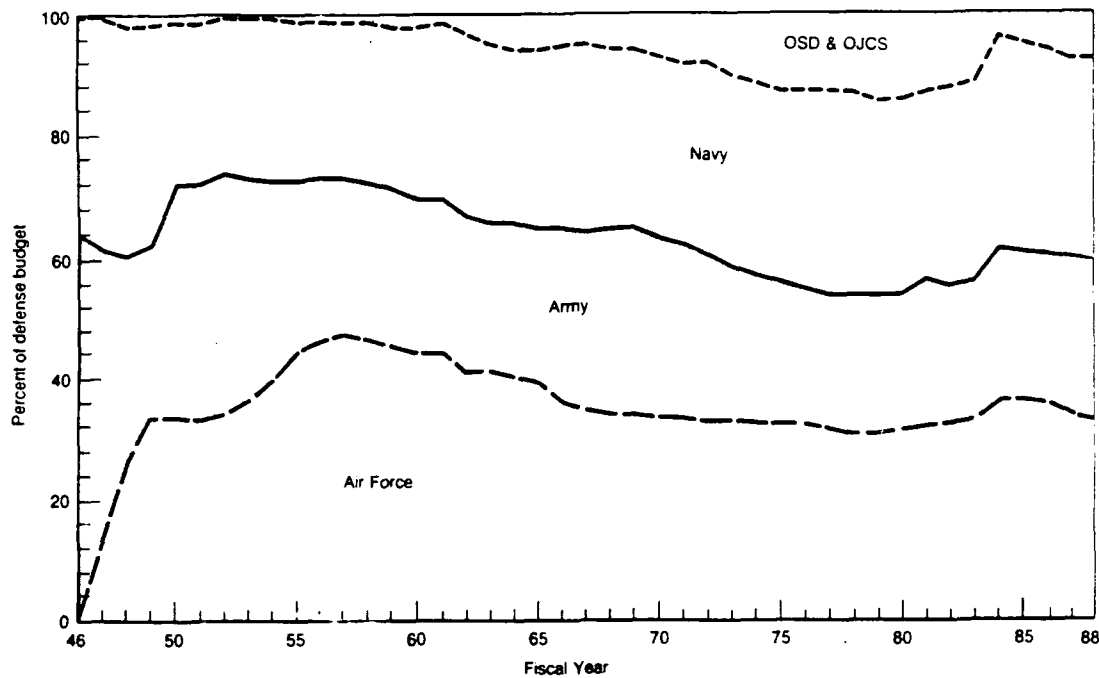


Fig. 21—Service shares of total defense spending, FY46-88

ranged from 27 percent in the mid-1950s to 37 percent in 1948. The Army's share of the total defense budget between FY48 and 88 ranged from 23 percent from FY57-61 to 40 percent in FY52. Table 20 provides some snapshot summary statistics of these data.

Figure 22 is provided in the interests of suggesting the outcome of the supposedly vigorous competition for resources by the three services since many commentators assert that the *raison d'être* of any organization is to maximize the size of its budget. Any

Table 20

PROPORTIONAL CONSTITUTION OF BUDGET BY ORGANIZATION  
DURING SELECTED EPOCHS  
(Percent of TOA)

Organization	1948-50	1951-53	1954-61	1962-69	1970-80	1981-88	1948-88	1962-88
Army	33	38	25	28	27	26	28	27
Navy	36	29	28	29	29	32	30	30
Air Force	31	33	45	37	30	34	35	33
DoD-wide	—	—	2	6	14	8	7	10

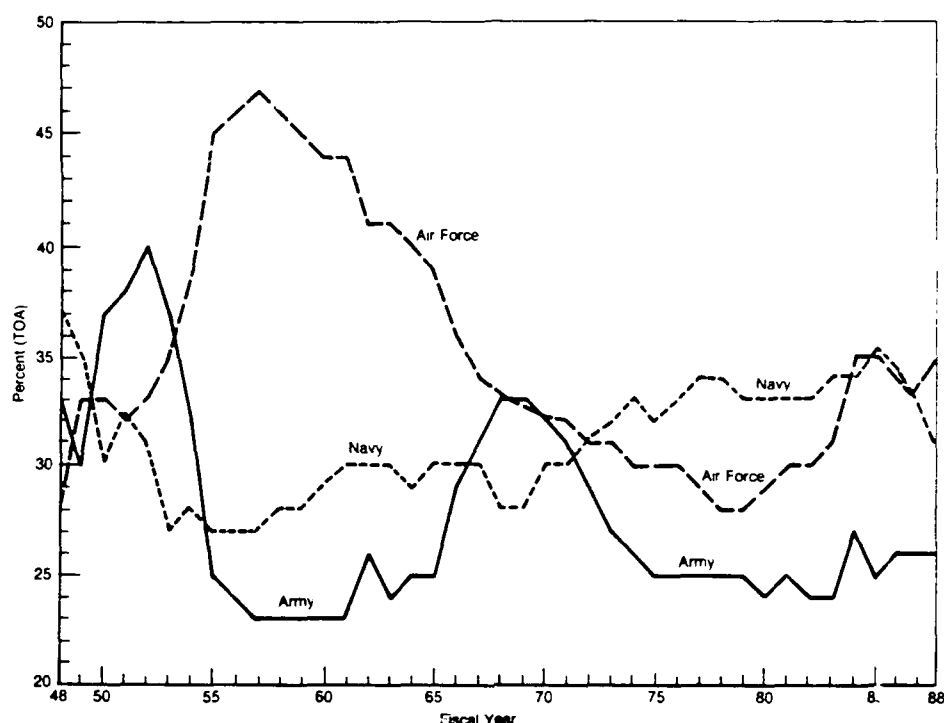


Fig. 22—"Competitive" service shares of defense budget, FY48-88

defense planning game knows that is a naive view of the world. Nonetheless, this simple overlay of the proportional shares of the Army, Air Force, and Navy does suggest a few items of interest. For those cynics who think of the DoD budget as an inter-service playground, Fig. 22 shows how well each of the three services is doing in the overall defense budget derby.

The Air Force's slice, for instance, rises abruptly from about 30 percent in FY50 to more than 45 percent in the mid to late 1950s; it subsequently dips rapidly down past 30 percent in a more or less straight line fashion. Then, the Air Force, compared with its history, fares poorly up until the 1980s. As Fig. 22 and Table 20 show, over the period from FY48-88, the Air Force has had the highest average share of the defense budget (35 percent), followed by the Navy (30 percent) and the Army (28 percent). Between FY55 and 64, one finds a large difference in budget shares. The Air Force averaged 45 percent of the total, ranging from 44 percent in FY64 to 48 percent in FY57. The Navy share of the budget averaged 28.5 percent and ranged from 27 percent in FY55-57 to 30

percent in FY61-63. The Army share of the budget was the lowest. Averaging 23.9 percent, it ranged from 26 percent in FY61 to 23 percent in FY57-60. Between FY70 and 72 Air Force, Navy, and Army shares of the budget were nearly equal. After FY80 the Navy share rose by an average of 3.2 percent annually, making it equal to the Air Force share by FY85-86 and exceeding it in FY88.

The Navy budget hovers between the extremes of 27 and 33 percent over most of the period shown. In the last few years, it has done slightly better than that. Two explanations stand out. First, the Navy is, in some sense, the most diversified of the services.<sup>21</sup> Second, the Navy seems to enjoy the effects of a powerful congressional support base more than some other services at various times. This is not to say that the Navy is immune from the effects of defense politics, as experience particularly in the 1970s illustrates. But for many reasons, the Navy is highly resilient to both internal and external shocks that might affect its force structure.

The Air Force changes the most over this period, no doubt mainly because of the changing U.S. strategy as well as external contingencies over time. Within the USAF resume of missions and responsibilities, strategic and tactical air forces consume the majority of funding (the USAF also spends the most of any service on strategic mobility forces and on R&D). As national strategy changes, so do internal USAF priorities as well as the USAF's top-line. The USAF undoubtedly also enjoys considerable congressional support, but the controversial nature of many of its undertakings (particularly strategic nuclear and airlift forces) makes it somewhat vulnerable to force shocks related to strategy shifts.

Finally, the Army does better during hot contingencies, such as the Vietnam and Korean War episodes. The Army, however, does relatively less well during peacetime from a competitive point of view. It is unclear why this is true but some explanations include the lower capital intensiveness of the Army (and the less "glamorous" quality of many Army procurement efforts), the concentration of fast money accounts in the Army,<sup>22</sup> and weaker congressional support in a highly competitive resource environment.

<sup>21</sup>The Navy has been described as a "blue chip" stock, or the "Ma Bell," of the services, inasmuch as it maintains not only surface and submarine forces, but several air forces, its own army, a space force, a strategic force, mobility forces, and even some non-DoD capabilities (the Coast Guard would come under the operational control of the Navy in wartime).

<sup>22</sup>In the USAF and Navy, the investment titles averaged, over the period FY62-88, 49.3 percent and 50.1 percent of each service's total budget, respectively. However,

At any rate, these general findings are consistent with the observation made earlier that defense budgets as a whole—and it would seem from this internal DoD budget mix portrayal—do in fact reflect the vicissitudes of the global strategic situation with some reliability.

Again, the rise in defense agencies, joint activities, etc. is noteworthy. This is not much of a surprise given the fact that most of the big defense agencies didn't exist before 1958. Since that time, of course, they have (together with OSD/JCS costs) grown substantially, from about \$1 billion in 1960 to more than \$21 billion in 1980. The decline in the nonservice specific spending share after that point follows not from the fact that real spending went down, but rather that real spending held constant while the services grew.

In general, service shares stabilize over time. Over the long run, peacetime Air Force and Navy budget shares will be about equal, and both will reside somewhere in the 30–35 percent (of DoD) range. The Army will lag behind by some 5–8 percent, falling into the 25–28 percent range. (The Army performance over the period FY46–88 is a solid 30 percent, of course, because of wartime boom years. The average Army share is more like one-fourth of DoD.) Defense agencies and joint activities fluctuate but on average should hover at or around the 10 percent level. One interesting question regarding the future of joint budget items concerns the charging for SDI-related expenses by the various services. It is, for that matter, unclear how defense reform measures strengthening the hand of the UCP commanders might be translated into budget share shifts.<sup>23</sup>

## U S. DEFENSE BUDGET BY MAJOR FORCE PROGRAM

The major refinement of the defense budget accounting process since World War II was implemented by Secretary of Defense McNamara under the aegis of the overall Planning, Programming, and Budgeting System (PPBS). PPBS described ten major force

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over that same interval, the Army's operational titles averaged 67.3 percent of total Army TOA. The Army's reliance on large numbers of military personnel makes it especially vulnerable to near-term controversies; and its forward deployed character has from time to time stimulated balance of payments, burden sharing, and other topical concerns.

<sup>23</sup>Special operational forces, traditionally a small player in larger service budget process, are to gain independent budget authority by 1992, thereby creating an intermediate case between agencies and service budgets.



programs (MFPs) into one of which every defense dollar was to fall.<sup>24</sup> But the PPBS MFP system only takes us so far even under the best of circumstances. There simply remains too much ambiguity and complexity within the U.S. military's total inventory of activities to permit categorical budgetary refinement beyond a certain point.<sup>25</sup> Proposed refinements and alternatives to PPBS for generating more detail and precision have not only tended to leave large, unresolved overhead accounts, they have not really addressed regional budgeting problems.<sup>26</sup>

### **Major Force Programs: Absolute Budget Tabulation**

Figure 23 breaks the DoD budget (TOA) into the ten MFPs to point out major shifts in the scale of the U.S. defense effort.<sup>27</sup> The Defense top-line has been discussed above, so this commentary provides the highlights of some selected internal developments.

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<sup>24</sup>Many analysts of policy and strategy matters track grand strategic matters in terms of budget shifts of Major Force Programs I and II—"Strategic Nuclear" and "General Purpose Forces." This device seems obvious today, but it is necessary to recall the importance of this accounting convention at a time when the difficult transition away from nuclear reliance toward flexible deterrence was being brought about. See Enthoven and Smith, 1972, for a discussion of the background of and rationale for PPBS. PPBS today remains more or less the same as it was originally. In 1986, however, an eleventh MFP was added for special operational forces.

<sup>25</sup>Analysts, aware of the traditional limitations of existing accounting measures, periodically attempt to refine existing or devise new overall U.S. defense budget accounting methods. During the Carter administration, total DoD information organized by mission was published in a so-called Force and Activities Display (FAD) format.

<sup>26</sup>Take a practical illustration of the categorical uncertainties inherent in the current PPBS budgeting system. Many KC-135s are considered for budget purposes to be "strategic forces," but they would be essential in supporting the rapid conventional reinforcement of Europe; in so doing, they would be supporting both the "general purpose" and "strategic mobility" missions. AWACS is nominally a "conventional forces" asset, but some could be assigned both routinely and in emergencies to strategic homeland air defense duties. How does one work the books under such circumstances? Bill the tankers (or AWACS, or anything else) fully to strategic forces, to GPFs, or to some mix? And if a mix, how can one assure any kind of consistency in the accounting scheme from year to year?

<sup>27</sup>The 10 MFPs are: 1. Strategic Nuclear Forces; 2. General Purpose Forces; 3. Intelligence and Communications; 4. Airlift and Sealift Forces; 5. Guard and Reserve Forces; 6. Research and Development; 7. Central Supply and Maintenance; 8. Training, Medical, and Other Personnel; 9. Administration and Associated Activities; and 10. Support of Other Nations. Under the provisions of the FY87 DoD Appropriation Bill (P.L. 99-591), an eleventh MFP—for Special Operations Forces—was created. They also now have a unified SOCOM and an Assistant Secretary of Defense to oversee them, in addition to their own budget. See App. A for a detailed description of these MFPs.

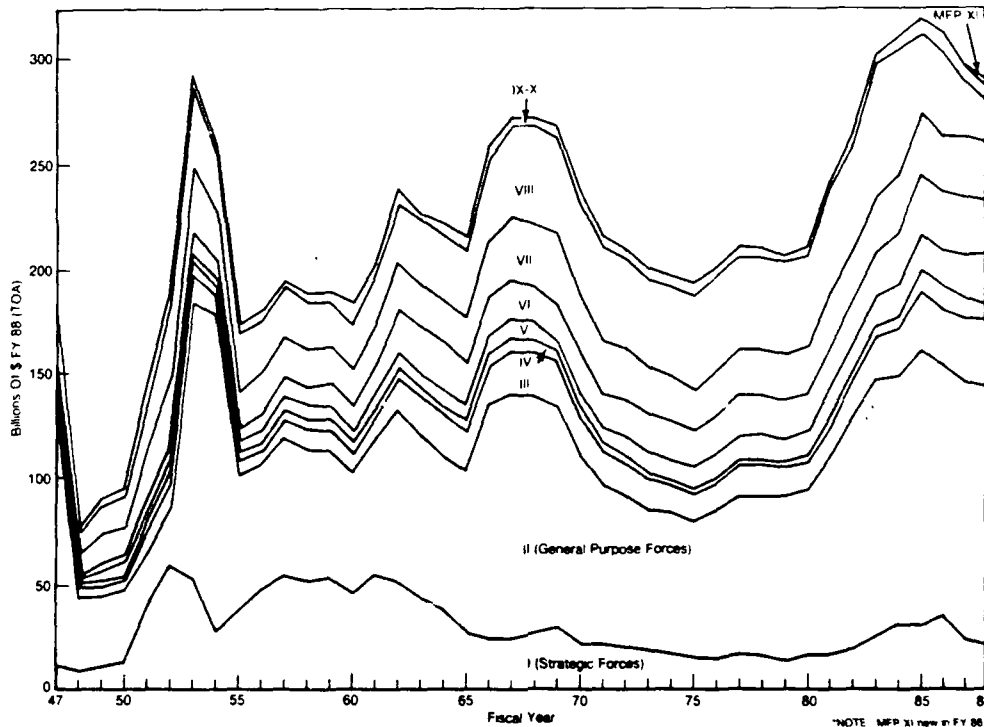


Fig. 23—U.S. defense budget by MFP, FY47–88, TOA

Naturally, the most conspicuous indicator over time is Strategic Forces. As World War II demobilization wound down, Program I spending dropped to the fairly low range of \$8–14 billion, in spite of the realization that strategic deterrence would play a profound role in the modern defense planning context. The Korean War provided a sharp stimulus to strategic enterprises in the form of both strategic bombardment operations against North Korea and a reaffirmation and decisive commitment of resources to nuclear deterrence as an alternative to major conventional capabilities and the backstop of the doctrine of containment. Peak wartime spending on Program I ran to some \$54 billion a year. Though there was a falloff in spending after FY53, the heavy emphasis on nuclear deterrence called for by the Massive Retaliation strategy resulted in maintaining substantial Program I budgets. Over the period FY54–61, Program I accounted for some \$375 billion, or roughly \$47 billion a year.

After 1961, a shift away from such a heavy strategic nuclear emphasis and the abandonment of costly bomber fleets in favor of less expensive (per alert warhead)

missile forces led to a substantial reduction in Program I spending, with almost a 50 percent decline from \$52 billion (in FY62) to \$27 billion (in FY65) in a very compressed interval. Nonetheless, FY62-65 average Program I spending was a healthy \$40 billion or so. For about six years, Program I hovered in the mid \$20 billions (ranging from a low of \$21.9 in FY71 to a high of \$29.6 billion in FY69—at which point spending for ballistic missile defense was at a peak): This figure included several impressive offensive modernizations (though ones "at the margin" of the posture),<sup>28</sup> as well as the ballistic missile defense effort.

There followed a substantial period—some 11 years—of Program I spending doldrums. From \$20.3 billion in FY72, Program I spent most of the next ten years in the \$15-17 billion range, emerging in FY 79 at \$19.0 billion. Cumulative Program I spending over this period was \$187 billion, for an average of approximately \$17 billion a year. If certain extreme cases (FYs 72, 73, and 82) are removed, the average here was about \$16 billion. The low point here came with a Program I value of only \$13.8 billion in FY79. The reader no doubt can associate these statistics with the slow pace and frequent setbacks to U.S. offensive modernization of this period.

Finally, with the simultaneous replacement of all three legs of the Triad looming as requirements, Program I enjoyed a boom from \$19.0 billion in FY82 to a figure (not seen since FY64) of \$34.5 billion in FY86. The eight-year period FY81-88 yielded a cumulative \$200 billion or so in Program I spending, an average of some \$25 billion a year.

Throughout the period, MFP II (General Purpose Forces) was the largest portion of the defense budget. It averaged \$83 billion annually, ranging from \$26.2 billion in 1951 to \$150 billion in 1954. Increases in MFP II were the main causes of overall budget increases in FY53-54, FY66-67, and after 1982. In FY53-54, MFP II averaged \$140.8 billion; in FY66-67 it averaged \$105.2 billion; and after FY81, it averaged \$118 billion.

In the 1950s, spending on Program III (Intelligence and Communications) was fairly low (about \$9.7 billion on average); throughout the 1960s, MFP III grew, reflecting the requirements of Flexible Response and Vietnam, tending to reside in the \$18-20 billion range. With the downturn in defense prospects generally through most of the 1970s, Program III's range was a very consistent \$14-15 billion. In the most recent

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<sup>28</sup>Such as MIRVing missiles, and deploying more weapons on bombers.

epoch (the 1980s), the jump in MFP III spending (to \$24 billion on average) is particularly noteworthy, highlighting the emphasis on sophisticated national command capabilities for strategic contingencies and an array of tactical intelligence gathering systems alike.<sup>29</sup>

Airlift and Sealift (MFP IV) averaged about \$4 billion annually over the entire period shown, ranging from \$1.7 billion in FY48 to \$6.0 billion in FY53. In general, fluctuations reflect both the requirements of specific contingencies and periodic Military Airlift Command modernization initiatives (the C-5 and C-141 in the early and mid-1960s, and the C-5B and C-17 in the 1980s).<sup>30</sup>

There are six U.S. Guard and Reserve Components.<sup>31</sup> The number of forces assigned to these elements, their role in full-mobilization contingencies, and the quality of the units have all increased steadily over time, with certain exceptions.<sup>32</sup> Guard and Reserve Forces (MFP V) averaged \$10 billion annually, ranging from \$2.3 billion in FY47 to \$17.7 billion in FY85. Here, the trend is uniformly upward over time, reflecting the constantly growing reliance on the Total Force, especially after the shift to the AVF in 1973. Speaking broadly, the USAF and Army have rely the most on Guard and Reserve forces. Recently, for instance, the size of the Army's high priority reserve elements exceeded the size of the active force for the first time. The high quality of many reserve units, changing scenarios, and budget pressures ensure that the G&R will

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<sup>29</sup>Including TR-1, JSTARS, and many more.

<sup>30</sup>MFP IV spending has primarily been USAF MAC operations and procurement. Since problems in the Persian Gulf after 1979, some new sealift resources were procured, meeting requirements for rapidly available, off-the-shelf strategic lift and taking advantage of a glut of economically inefficient shipping on the world market. In general, however, the purchase and operation of aircraft tends to drive the MFP IV account.

<sup>31</sup>Seven, including the U.S. Coast Guard Reserve (the USCG operates under the supervision of the Department of Transportation in peacetime, and the Navy in wartime).

<sup>32</sup>In general, strategic forces are inappropriate for the reserves, given the alert requirements of these forces and special security and human reliability requirements for them. Even so, the USAF has transferred some aerial tanker forces and air defense forces in the reserves. The Navy has until very recently not relied much on the reserves, for similar reasons. Long forward deployments are incompatible with reserve personnel management principles, and the extreme training and technical demands of such operations as carrier battle groups and nuclear submarines are not adequately met on a part-time basis. Nonetheless, the Navy has relied on reserves for such capabilities as land-based ASW, replacement pilots for carrier-wings, etc. The Marines have maintained an ever-more capable division/wing team. However, there are signs that traditional Navy policy may change in the future, as budget cuts force new force units into the reserve, and as operational concepts are rethought.

play an ever increasing role over time. Thus, the total reserve posture of the United States has grown steadily, from fewer than 800 thousand high priority reservists in FY78, to more than 1.15 million in FY88. More combat units have been added since 1980 (including two Army divisions, more than two USAF TFW-equivalents, and increasing numbers of nonobsolescent Navy ships).

The MFP for Research and Development (VI) averaged \$14.6 billion annually, ranging from \$3.0 billion in FY48 to \$28.1 billion in FY86. Again, the overall trend is upward, with the exception of a peak in strategic and general purpose force R&D initiatives surrounding the conversion to the Flexible Response strategy.

As with the Operational Appropriations titles, the four support MFPs tend to be stable in absolute terms over time. The modest exception to this rule is the Program VIII account, which is influenced first by Vietnam, and then by the force reductions after the war and the conversion to the AVF, and a growing military entitlements burden. Of the MFPs, Central Supply and Maintenance (MFP VII) averaged about \$25 billion, ranging from \$10.4 billion in FY48 to \$34.1 billion in FY52. Training, Medical, and Other Personnel (MFP VIII) averaged \$35 billion, ranging from \$9.8 billion in FY48 to \$51.1 billion in FY83. Support of Other Nations and Administration and Associated Activities (MFPs IX and X) averaged about \$7 billion over 40 years, ranging from 2.0 billion in FY50 to \$13.4 billion in FY69 (when aid to South Vietnam drove Program X up).

Table 21 provides a useful general tabulation of the rise and fall of the MFPs over time. Certain changes in strategy, policy, etc. are clear: for instance, the movement away from a strategic emphasis in the 1950s, the growing importance of R&D and I&C, increasing reliance on reserve forces, etc.

### **Major Force Programs, in Proportional Terms**

Figure 24 shows the share of the DoD budget represented by each of the ten MFPs in percent of total TOA. This admittedly complicated portrayal nonetheless does give a good feel for the emphasis placed on the different major elements of the national defense over time, at least by the metric of the MFP.

The MFPs in proportional terms are shown over the period FY46-88. The peak years of U.S. nuclear reliance followed by the stabilization of MFP I after the mid-1960s show up clearly. Also clear is the expansion of MFP II during times of either limited conventional conflict or, as with the early 1980s, a major conventional forces buildup. The total budget share going to the combat MFPs (MFPs I through VI) as opposed to

Table 21  
AVERAGE VALUE FOR MFP DURING SELECTED EPOCHS  
(Billions of \$FY88, TOA)

MFP	1948-50	1951-61	1962-65	1966-72	1973-80	1981-88	1948-88	1962-88
I, SNF	12	48	41	24	16	25	30	25
II, GPF	33	70	76	97	71	118	83	94
III, I&C	3	10	17	18	14	25	15	18
IV, Lift	3	5	4	5	2	6	4	4
V, G&R	4	6	9	9	11	16	10	12
VI, R&D	3	9	21	16	17	26	16	20
VII-X <sup>a</sup>	26	61	56	84	71	78	67	74

<sup>a</sup>MFP XI, Special Operational Forces, included in MFP II.

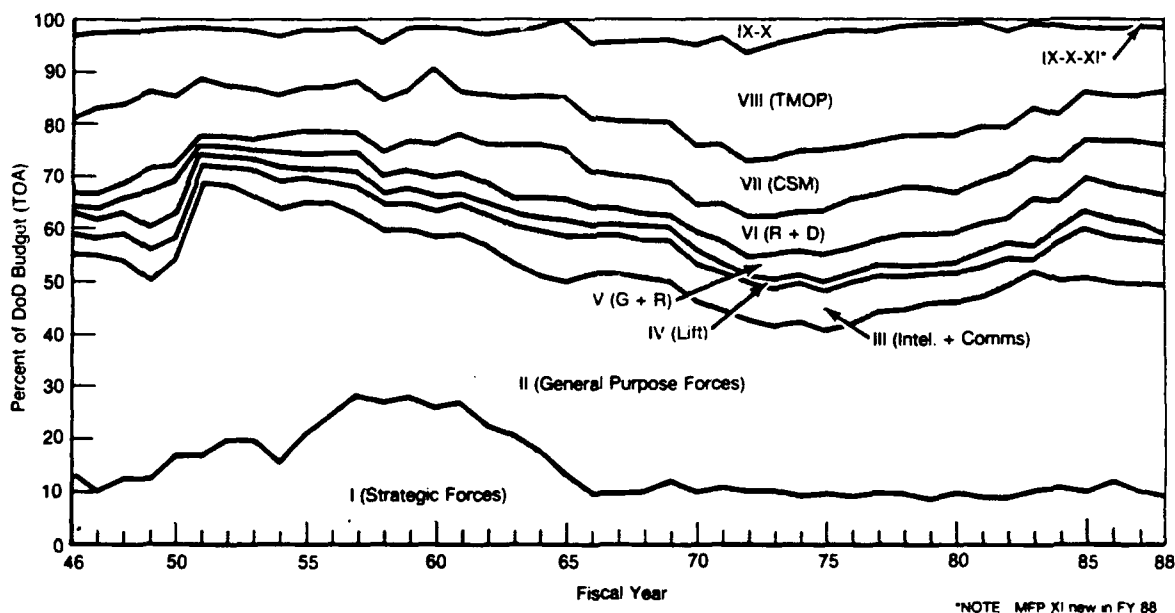


Fig. 24—MFPs as a share of DoD budget, FY46-88

support MFPs represents a fairly consistent two-thirds to three-quarters share of all spending over the entire period. During the "decade of neglect," the support shares expand to consist of about 35 percent of the total defense budget; in this respect they parallel the relative expansion of the operational<sup>1</sup> appropriations titles cited earlier.

MFP I averaged 13 percent of the total DoD budget, ranging from 6.2 percent in FY47 to 31.8 percent in FY52. MFP I declined steadily after 1962, and the average over the period FY62–88 was 8.6 percent. MFP II made up the largest percent of the total over 42 years, averaging 36.7 percent, and ranging from 31.5 percent in FY59 to 42.3 percent in FY66. MFP III averaged 6.7 percent of the total and ranged from 1 percent in FY75 to 30.7 percent in FY52. MFP IV averaged 2 percent of the total, ranging from 1.2 percent in FY47 to 3 percent in FY85. MFP V averaged 4.3 percent, ranging from 0.7 percent in FY46 to 5.9 percent in FY78. MFP VI averaged 6.7 percent, ranging from 1.5 percent in FY46 to 9.7 percent in FY63–64.

See Table 22 for a summary of the generally modest shifts in the proportion of the defense budget represented by each MFP over time. For the most part, proportional shares seem to have become quite stable over the most recent 20 years.

### The Primary Combat MFPs: MFPs I, II, and IV

Major force programs I, II, and IV, can be considered primary "combat/operational" major force programs. Figure 25 breaks out in an overlay<sup>33</sup> to form the TOA in billions of \$FY88 for the three most immediate combat-oriented MFPs—I, II, and IV (or Strategic, General Purpose, and Mobility Forces, respectively). Figure 25 also includes some anecdotal detail explaining the movement upward and downward of the various lines. The interesting historical feature is the changing relationships of the

Table 22  
PROPORTIONAL CONSTITUTION OF BUDGET BY MFP DURING  
SELECTED EPOCHS  
(Percent of TOA)

MFP	1948–50	1951–61	1962–65	1966–72	1973–80	1981–88	1948–88	1962–88
I, SNF	14	23	18	9	8	9	13	9
II, GPF	39	34	34	38	35	41	37	38
III, I&C	4	5	8	7	7	9	7	8
IV, Lift	3	2	2	2	1	2	2	2
V, G&R	4	3	4	3	5	6	4	5
VI, R&D	3	4	10	6	9	9	7	9
VII-X <sup>a</sup>	33	29	25	33	35	26	30	30

<sup>a</sup>MFP XI, Special Operational Forces, included in MFP II.

<sup>33</sup>Not stacked.

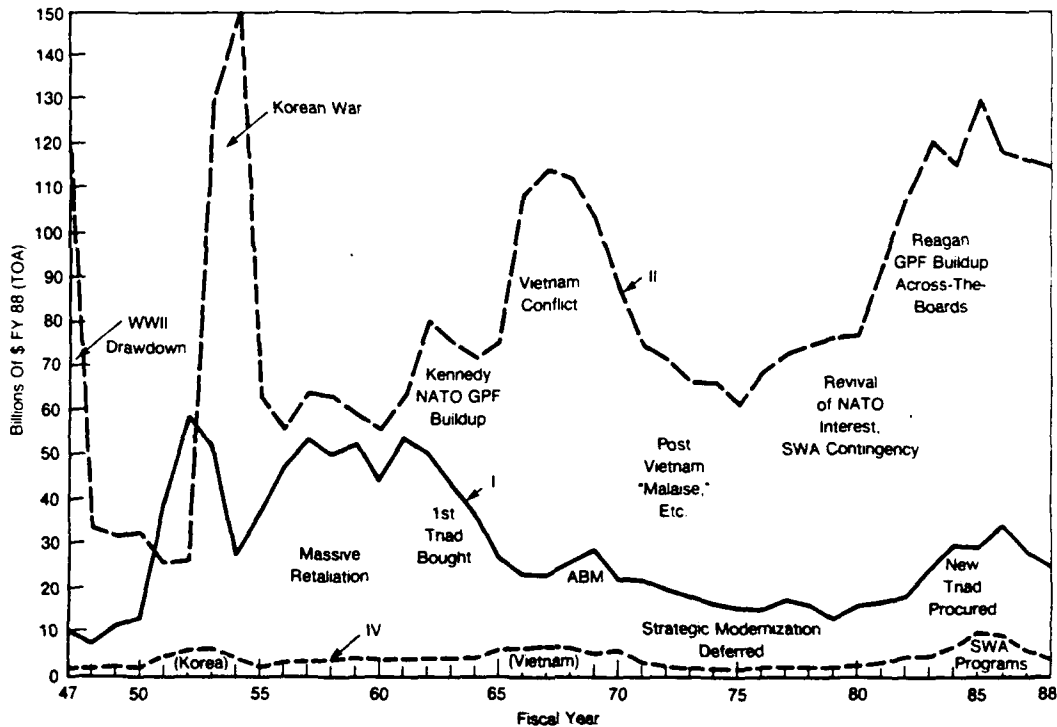


Fig. 25—Trends in Programs I, II, and IV, FY47-88, TOA

Strategic Nuclear and General Purpose Forces accounts when the 1950s and early 1960s are compared with the subsequent epoch.

The data shown here are entirely consistent with basic historical national security highlights of the past four decades. The heyday of strategic forces between 1951 and the early 1960s is obvious, just as is the retrenchment in these forces throughout the 1970s. The various spikes for conventional contingencies are clear for Program II—the Reagan Program II rebuilding program has led to Program II budgets that exceed those seen during the Vietnam years (although they don't reach the Korean war peaks, they have certainly lasted longer). Finally, the generally low, but intermittently upward status of Program IV is noticeable.

Program I peaked during the Korean War (\$59.8 billion in FY52). It fell after FY54 and then rose again during Massive Retaliation through the purchase of the First Triad. The budget averaged \$47.8 billion annually from FY55-64. From FY65-79, it fell overall, from \$27 billion to \$13.8 billion. The only increase during this time was in



FY69, attributable to the ABM, MIRV, and other such programs. After FY80, the Program I budget rose again, for the New Triad. It increased from \$16.4 billion in FY80 to \$34.5 billion in FY86, after which it fell.

Program II dropped sharply from \$340 billion in FY46 to \$26.7 billion in FY52. It then rose sharply during the Korean War, to \$150.6 billion in FY52. Following Korea, it fell to \$64.2 billion in FY55. In the ten years between FY56 and 65 it increased slowly to \$76.3 billion in FY65. It continued to increase during the NATO GPF buildup through Vietnam to a peak of \$115.9 billion in FY67. It fell steadily to \$69 billion in FY76. During the revival of NATO in FY76 Program II budget began to rise again, and increases continued through FY86 during the Reagan across-the-board GPF buildup.

#### **Support MFPs: MFPs VII Through X**

Having looked at the "tooth," consider the "tail." Figure 26 provides a similar closeup on what are considered the support programs in the PPBS accounting scheme, MFPs VII through X. The dashed line in the figure describes the total budget of these programs taken altogether in billions of \$FY88. The solid line refers to the right axis and is the relative amount of the defense budget occupied by the support programs. Again, support activities tend to grow during periods of relative defense budgets constriction.

As is true for most large organizations, overhead tends to grow, particularly as a share of the total budget, when there is a low pressing demand for more immediate front end outlays (for defense, these being combat programs). The percentage share of DoD curve spent on support MFPs not only declines when DoD spending as a whole is up but also when operational requirements are most pressing (as with Korea and Vietnam).

Note the spikes in absolute support MFP budgets during periods of combat military requirement (Korea or Vietnam but not during the peacetime Reagan administration buildup). Also, even when top-line budgets are constant from year to year, both absolute support MFP budgets and the share of support costs can be made to decline, albeit modestly, for the duration of that stable funding epoch. Thus, during periods of tight defense budgets, support budgets are milked to fund front end operational budget categories. Some of this minor reorientation may also represent the realization of new efficiencies in management during steady-state peacetime planning environments.

Overall, between FY47 and FY88, the support MFPs (MFP VII through X) ranged from a low of \$22.5 billion in 1948 at the relative depths of U.S. demobilization to a high of \$91.3 billion in 1969. Together, these averaged about \$64 billion annually.

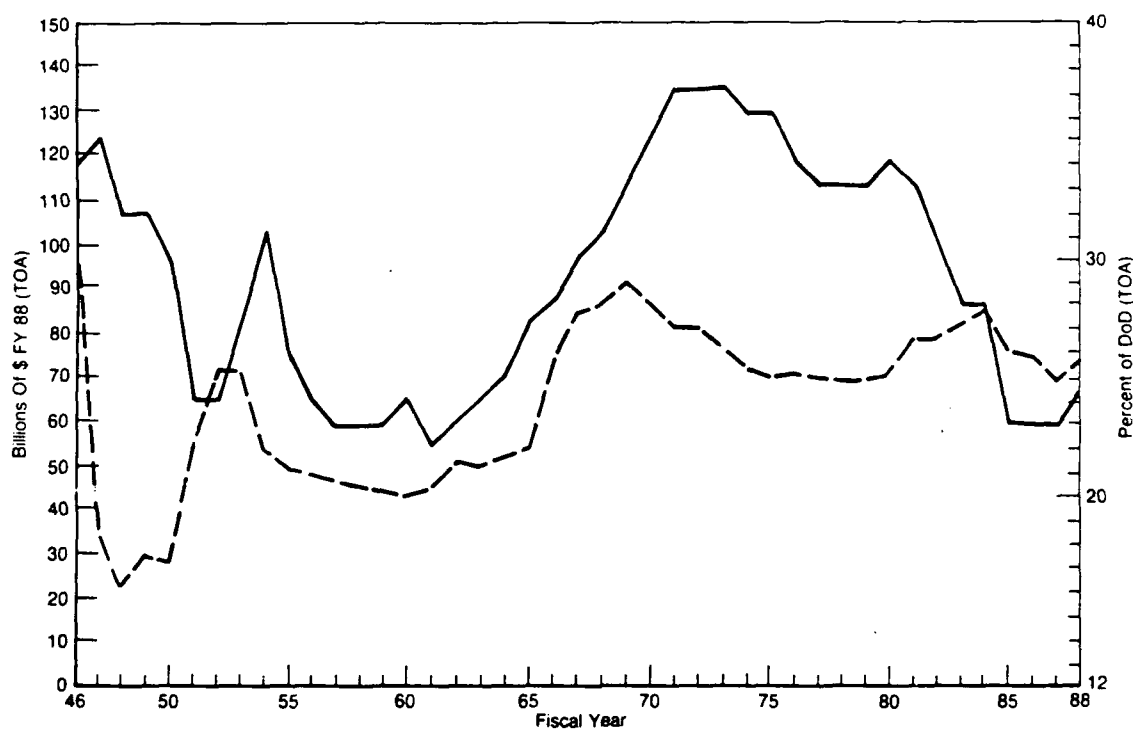


Fig. 26—Trends in Programs VII-X, FY47-88

Some shifts in this index from year to year suggest its sensitivity to specific developments at any particular time. In the scramble to demobilize—with requirements for new personnel plummeting—spending on MFP VII-X decreased from \$98 billion in FY47 to about \$34 billion the next year; on average, in the late 1940s the proportion this represented of the total defense budget nonetheless stayed in the vicinity of 30 percent. By FY53 this slice of the budget had risen to \$72 billion, reflecting war requirements; but as a proportion of the total defense budget, it declined from 32 percent to 27 percent. In absolute terms, this superaccount held fairly steady over the extended period 1954 to 1965, ranging between the interval of \$43 billion in 1960 to \$59 billion in 1965, residing in the 25-30 percent of DoD TOA range.

From FY65-70 there was a sharp increase in MFP VII-X budgets because of Vietnam. The budget during that time ranged from \$73 billion in 1966 to \$91 billion in 1969; as a share of DoD, spending on support MFPs also rose during that time, from 28 percent in 1966 to 35 percent in 1970. Between 1970 and 1988 absolute budgets were

roughly constant, with a slight upward trend during the Reagan buildup, when "get well" readiness initiatives were underway. The shift to the AVF in 1973 does not affect the total greatly; it ranged from \$69 billion in 1978 and 1979 to \$84 billion in 1984. As a share of DoD, the support MFPs continued to rise after 1970, averaging 36.6 percent until 1975. After 1975, it fell again, to 23 percent in FY85-86. (See Table 23 for summary data on the "Support" MFPs.)

### SUMMARY OF THESE INTERNAL DoD TRENDS

This section concentrated on internal DoD budget trends and illuminated certain important trends planners should bear in mind as they consider future resource mix questions. Changing patterns within various elements of the defense program that account for changes in the overall mix are not addressed, save sensitivity of these accounting entities to external (e.g., combat) and certain other developments (e.g., procurement drives, retired pay accretion). Many crucial lessons remain to be highlighted but they are beyond the scope of this particular study.

The defense budget—especially those budgets following the replacement of Massive Retaliation with the strategy of Flexible Response—is highly stable, and the accounting categories *generally* tend to converge over time. Relationships between large-scale budget categories and posture entities are highly stable over time. There are almost natural relationships between the maintenance of the posture and the internal mix of the budget, although many accounting entities (e.g., spending on research, retired pay, administration, etc.) are independent of force levels.

Over time, spending by appropriation titles shows stable patterns. Spending on RDT&E amounts to a very consistent 10 percent of the total budget. Spending on O&M

Table 23

#### SUPPORT MFPs: AVERAGE VALUES (Billions of \$FY88)

MFP	1948-50	1951-61	1962-65	1966-72	1973-80	1981-88	1946-88	1962-88
VII, CSM	12	27	20	32	24	26	25	27
VIII, TMOP	12	29	30	40	41	46	35	43
IX, AAA	2	5	5	5	4	5	5	5
X, SOON	0	0	1	7	2	1	2	4
Total	26	61	56	84	71	78	67	79

and military personnel is generally about equal (in the 27-29 percent range), save for the effects of retired pay.

Procurement benefits disproportionately with extended budget increases and suffers over extended gaps. Procurement will probably be the premier battleground of the budgetary conflict of the early 1990s.

There are certain problems with overhead accounts: In general these have gone down over time in absolute and proportional terms (such as MFP IX). But others, including military entitlements and benefits in MFP VIII and retired pay, are moving steadily upward. They will compete with other defense accounts that are more directly involved with putting posture on line.

The stable budget mix by service seems to be about one-fourth of TOA for Army and about one-third each for the Navy and the USAF. The Navy has recently been the most stable, probably because it is the most diversified service. The Army has traditionally been the most vulnerable service budgetarily at a high level of aggregation. The amount of money to be spent on defense agencies has grown steadily and should be evaluated in light of other requirements.

Natural spending levels (and proportional amounts) for the major combat MFPs is as follows: I, \$20-25 billion (about 8 percent); II, \$90-105 billion (35-40 percent); IV, \$2-3 billion (5-6 percent); and V, \$15-20 billion (6+ percent). The growth of the Guard and Reserve MFP, requirements for strategic mobility, and the new Special Operations MFP (MFP XI) are all growing in budgetary as well as strategic importance.

Support MFPs, like support appropriations titles, increase in proportional terms in "bad" budget years. Barring a really precipitous top-line decline, a logical target for the support MFPs is probably in the neighborhood of \$70-75 billion, with the great majority going to MFPs VII and VIII in roughly equal proportions (although MFP VIII has been growing relative to MFP VII in recent years).

## V. CONCLUDING REMARKS

In the aftermath of the Vietnam War, the U.S. defense establishment suffered from adverse effects and constraints that collectively were known as the post-Vietnam "malaise" or "hangover." Among these effects, and possibly most pernicious, was a series of defense budgets that were, by historical and other standards, unusually low. By the end of the 1970s, one consequence of this extended period of austerity was widely reckoned to be a debilitated and insufficient U.S. defense posture, not only because of resource starvation, but also because of the diversion of resources to Vietnam, the relative growth of Soviet capabilities, confusion over U.S. goals and strategies, and assorted other problems.

Beginning in the late 1970s with several global reverses, U.S. defense budgets began to move upward again. The rehabilitation of the DoD program accelerated following the election of Ronald Reagan. In FY81 and FY82, the defense budget grew by about 27 percent in real terms. At the time, ambitious plans were conceived for a major force structure buildup paid for by long-term growth.

Although these were not to be realized, DoD budgets grew steadily in real terms to a high of \$320 billion in FY85. That figure represents a level of spending of 55 percent above the budget of FY79, the year in which sustained real growth began. This buildup is unique not only in its size but in its endurance: unprecedented real increases over six consecutive years. Force modernization took place over this period, and the U.S. defense establishment now is far more powerful, in both absolute and relative terms, than it was at the beginning of this buildup.

The FY86 defense budget marked the beginning of a period of so far gradual real DoD budget decline. Since then, the budget, measured in terms of authority, has declined by about 13 percent in real terms (or perhaps worse, depending on the outcome of the FY90 budget process). Attempts since the mid-1980s to reverse this trend were made but have failed so far. The FY90 Bush administration revised budget request (as amended in an April 1989 White House-Congressional compromise) acknowledges fiscal and political realities. A further real decline at a rate at least that of inflation is likely for the near term. The key question now is when this decline will be arrested and for how long it may continue. If continuing decline is likely, the question is, at what rate? Some

accommodation by the military will be necessary: Many of the services' plans for posture expansion, and many major force structure modernization initiatives, have already been canceled.

That, to many, is the bad news. The good news is that the defense budget was elevated to such a high baseline during the Reagan administration that even after half a decade of budget decline, the budget would remain quite high historically (as high as peak Vietnam budgets, and one-third higher than what are generally acknowledged to be the insufficient budgets of the late 1970s). Nonetheless, even without continued downward movement in the budget, plans must be revised. Pressures for such revision will be amplified and possibly influenced in other ways by other contemporary developments, including the prospects for arms control agreements with the Soviets, a changing perception within our coalitions of basic strategic goals, a resurgence of interest in the United States on the need for rebuilding the social safety net and undertaking various other nondefense aims, and a general rethinking of the question of what the basic roles of U.S. military power in the modern world should be.

The debate over defense budget and posture options is bound to grow more heated. It is unclear how and how fast things will change or, for that matter, whether certain patterns of change already under way will lead to enduring effects, so far as resources are concerned. Already, schools of thought on alternative approaches to the changing environment are emerging. At one end of the spectrum one finds a traditionalist group. They tend to see the current downturn in resources as a necessary adjustment in the wake of the major Reagan buildup. For them, the issues will revolve around the need to consolidate current capabilities and programs, identify priorities, and proceed more or less with business as usual. At the other end of the spectrum are those who see the current national security context as coming into a period of irrevocable change. This group does not rule out a fundamental revamping of the way we have gone about our business when it comes to national security planning. Noting the basic change in the world—and, apparently, assuming that changes *en train* will become meaningful and permanent in the short run—this school of thought has even led some to think of defense budgets at a level substantially below those prevailing during the past quarter century or so.<sup>1</sup>

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<sup>1</sup>One example is to be found in a study by DRI/McGraw Hill, sponsored by *Business Week* magazine, which explored the economic implications not just of a continuing

One intriguing aspect of the defense planning effort of the early 1980s was the lack of controversy of many defense resource issues that under other circumstances might well have commanded more political attention. The explanation for this phenomenon is probably quite simple: During the early Reagan buildup, financial resources were sufficiently plentiful and the popular consensus for defense was sufficiently strong that many otherwise difficult tradeoffs did not have to be worked out in detail.<sup>2</sup> In contrast, several issues are now beginning to generate considerable controversy. These include the ultimate size of the DoD top-line; the spending mix among missions, regions, and services; the balance between in-hand capabilities and long-term development options; the role of arms control in attaining national and coalitional aims; and the proper balancing of resource commitments among the members of the formal and other collective security coalitions to which the United States belongs.<sup>3</sup>

Resolving such complex questions will be enormously difficult. Many of the issues in this debate have been eclipsed by political concerns (such as the Presidential transition). Other matters, such as the effects of the Gramm-Rudman-Hollings sequestration process, are highly arcane and defy easy characterization. This has generally precluded a very detailed argument over the quantitative side of the fundamental question: How much is enough? But already the sides in the debate have begun to mobilize arguments one way or the other. Yet it is difficult to interpret and assess this debate, inasmuch as current defense controversies have so far often been framed in free-standing, impressionistic terms.

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budget turn-down along recent lines, but also some radical future reductions in DoD spending through the 1990s; the results of what can only be described as an enduring defense budgeting drought are cast as highly favorable to the national economy in the long run. See "Fewer Guns Could Mean a Whole Lot More Butter," *Business Week*, June 12, 1989, pp. 66 ff.

<sup>2</sup>Rather than examine the top-line, issues pertaining to strategy, and the like, the defense debate throughout much of the Reagan era concentrated on extremely modest points. The \$600 toilet seat and the DIVAD air defense gun fiasco are much better remembered by most people than are other far more costly and strategically critical issues.

<sup>3</sup>Such concerns coincide with a revival of the "reform" and "anti-defense" movements that generally faded from sight during the 1980s. For the first time in a long while, we are hearing about the costs to the economy of (for instance) diverting scientific talent away from the civilian sector to the national security effort, and so on.

This study has sought to inform emerging debate by reviewing certain budget trends.<sup>4</sup> Based on the findings of this analysis, the following lessons seem pertinent as planners consider their future options.

### **Lessons from Sec. II: Defense in a National Context**

- Since the Korean War, the Defense Department's top-line has fairly reliably reflected the situation prevailing in the world. Whatever the specific determinants of increases and declines, moreover, defense spending top-lines are a cyclical, not steady-state, proposition.
- Since the mid-1960s, defense spending has faced an ever increasing degree of competition from the nondefense sector of the federal budget. Unless there are substantial changes in existing tax legislation, the current deficit situation, and other major areas, this competition can be expected to grow more fierce in the years ahead.
- Little can be done to control much of the nondefense spending superaccount. Moreover, for structural and other reasons, this figure should grow steadily, at least for the time being.
- Measured in several ways, the defense burden on the American economy and its people has declined steadily over time.
- Based on recent experience, a fairly natural level of national defense spending over the long run is a top-line outlays figure of \$240–260 billion and a defense:federal spending ratio of 25–29 percent.
- Given movement in the cyclical defense budget over time, what is at stake in any given epoch is not the whole budget, but rather more like \$100 billion.

### **Lessons from Sec. III: The Defense Top-Line**

- There will be difficult tradeoffs in generating serious outlay reductions required to meet legally mandated federal budget deficit targets. Some

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<sup>4</sup>A few remarks on posture trends of note appear in App. B. The reader can correlate the changes in direction and constitution of the budget with the evolving posture over time.



optimum mix of hardware and fast money cuts will yield the necessary cuts now and in the future, and balance near-term preparedness and long-term modernization and other options.

- Over the long-term, defense budget growth is upward. In the historical pattern defense budgets tend to jump up in a few years, and then decline over a somewhat longer period. Clearly, such a creep-down period is going on right now. History provides little insight into the probable duration of a decline.
- Defense spending represents the lion's share of federal controllable expenditures, and will be a tempting target for would-be deficit controllers in the 1990s.
- A considerable gap exists between recent and current FYDP expectations and what the budget is likely to yield. It takes years to reorient such expectations. Moreover, considerable momentum remains in the program carrying over from the mid-1980s, and this momentum is bound to collide with certain realities of the contemporary budget situation.
- To assure a smooth, efficient, and effective defense program, it is desirable to avoid substantial modification of that program by Congress if that modification leads in turn to uneconomical acquisition (e.g., by stretching out production) and irrational choices (e.g., procurement of unnecessary and undesired weapons, failing to exploit tendered economies such as base closings).
- It is easier to balance and plan for very specific parts of the total defense program over a fairly near-term time horizon. The larger and more ambitious the plan, and the longer the time horizon, the less reliable the mechanisms for achieving efficiency.

#### **Lessons from Sec. IV: The Internal Defense Budget Mix**

- The defense budget—especially following the replacement of Massive Retaliation with the strategy of Flexible Response—is highly stable. There seem to be almost natural relationships between the maintenance of the posture and the internal mix of the budget, even though many accounting

entities (e.g., spending on research, retired pay, administration, etc.) are independent of force levels.

- Over time, spending by appropriation titles shows stable patterns. Spending on RDT&E amounts to a very consistent 10 percent of the total budget. Spending on O&M and military personnel is generally about equal (in the 27–29 percent range), save for the effects of retired pay.
- Procurement benefits disproportionately with extended budget increases, and suffers over extended gaps. Procurement will probably be the premier battleground of the budgetary conflict of the early 1990s.
- In general overhead accounts have gone down over time in absolute and proportional terms (such as MFP IX). But others, including military entitlements and benefits in MFP VIII and retired pay, are moving steadily upward. They will compete with other defense accounts that are more directly involved with putting posture on line.
- The stable budget mix by service seems to be about one-fourth of TOA for Army, and about one-third each for the Navy and the USAF.
- Natural spending levels (and proportional amounts) for the major combat MFPs are as follows: I, \$20–25 billion (about 8 percent); II, \$90–105 billion (35–40 percent); IV, \$2–3 billion (5–6 percent); and V, \$15–20 billion (6+ percent).
- Support MFPs, like support appropriations titles, increase in proportional terms in bad budget years. Barring a really precipitous top-line decline, a logical target for the support MFPs is probably in the neighborhood of \$70–75 billion.

### **What Does All This Mean for Planners in the Near Term?**

The following findings are picked for special inclusion as closing points because of their importance and chronological immediacy. These points are noteworthy not only in the potential magnitude of their effects, but also in the need of defense planners to confront them in the near term.

**Competition Among Defense and Nondefense Programs.** The nondefense federal (and net public) budgets will grow: The only question is how fast this growth will occur and how much control it is possible to have over it. Barring action in the area of revenues, defense will face increasing pressure at least financially, and

perhaps politically as well. Yet we must avoid a return to the zero sum "Iron Law" approach followed by the Eisenhower administration. Arbitrary budget ceilings are no way to configure either domestic or national security policy. The tendency to see defense as "having had its turn" must be discouraged. The most rational, coherent, and unified presentation of the defense effort and budget possible in the future should therefore be quite high priorities. Unity and joint action by OSD, the services, interested members of Congress, and others will be at an all-time premium.

**The Necessity to Condition Plans on the Realistic Prospect of a Sustained Budget Decline.** The fiscal outyears have seen the tendency to assume some kind of positive budget wedge. Even when the near-term news looks bleak, much planning assumes that it will not last. It is possible that a period of little or no defense budget growth may obtain in the 1990s.

**The Need to Face Difficult Issues Beginning with the FY91 Budget.** To date, the post-FY85 budget downturn has been quite gradual and orderly. Yet because of the specter of GRH, political developments that do not favor increasing the scope of the defense effort, and competing priorities, the situation could become abruptly more stormy with the FY91 budget. It is imperative, then, to begin detailed analysis of the issues now, and to couch options in rational terms, avoiding the temptation to play political football with the DoD budget.

**The Necessity of Maintaining Coherence and Stability in the Overall Defense Program, and the Need to Keep the Program Consistent with Strategic Goals.** Turbulence in the program costs a great deal. This includes disruption at all stages of budget development. Whether the turbulence results from DoD or service adjustments, congressional action, year-to-year changes in the rules, the effects of GRH, or the outcome of elections, it is necessary to develop and then adhere with the greatest possible tenacity to the budget and other plans. Realistic, well-justified budget plans are the key to this.

**Procurement as the Probable Defense Budget Battleground of the 1990s.** Not only because of the historical evidence, but also given the changing strategic environment, the possible effects of changing circumstances on procurement could be unprecedented in their scope and consequence as the 1990s proceed.

**Marginal vs. Radical Solutions to the Budget Problem.** Many critics of the defense establishment have proposed radical restructuring of the way we go about

our business. To date, their plans have generally been discredited. Rather, a series of more modest, marginal adjustments and improvements could yield the most important dividends. A long-term approach is essential so as not to overestimate the ability to reap certain levels of savings by marginal adjustments, nor should we count on gaining such benefits too quickly.

The results discussed here, as well as any conclusions or extrapolations that might be based on such historical data, must always be qualified in light of the many uncertainties looming in the future. Now more than ever, these uncertainties could have a pivotal effect on the shape and size of the defense effort because of the "correlation of forces" now influencing the budget and other planning enterprises. Changes in the strategic context for planning and the nature of the threat coincide with the expiration of the defense budget boom of the early and mid-1980s. This conjunction of events makes the prospects for the future particularly unclear. Yet the last few years have involved a very gradual retrenchment in the overall program—to date, there have not been many hints of the dislocations that accompanied previous long-term defense budget busts, particularly, that following the Vietnam War.

Examination of the historical record shows that trends do exist, that they are stable, and that they exist and are robust for good reasons. Those who might call for more radical action on the budget and defense program in the years ahead should have the burden of proof on them. The budget may be changing, even fundamentally and structurally, but excessive change, or too abrupt a set of changes, leads to turbulence or worse and places in great jeopardy the ability to shape the course of strategic events.

## **Appendix A**

### **TERMINOLOGY**

#### **FEDERAL BUDGET TERMINOLOGY**

Spending is referred to in three ways, depending on the requirements of the portrayal:

- **TOA (Total Obligational Authority)** represents the total value of the direct DoD program in each fiscal year, regardless of the origin of the funds or method of financing (for instance, TOA might include receipts from foreign military sales, which would be funds not authorized by Congress and therefore not appearing in B/A). TOA is an accounting entity unique to the Department of Defense.
- **B/A (Budget Authority)** is the amount of authority granted the DoD by Congress. Such authority permits the obligation of funds for disbursement in the current and in future fiscal years. Usually, the difference between TOA and B/A results from the application of certain receipts that offset total B/A.
- **Outlays** refer to actual expenditures, or the actual value of the "checks written" in a given FY. It may differ from TOA or B/A, particularly during periods of substantial defense buildup and decline. Because entire weapons are authorized in a given FY, the value of such weapons appears in TOA for that FY, but it may take many years to construct that weapon (over which time progress payments would be made). When major weapons acquisition is occurring, outlays may lag TOA; in effect, there is a backlog of authority waiting to be converted into outlays. Some accounts, particularly salaries and operational expenses, are considered fast money. They convert from authority to outlays in one year, and for these accounts TOA and outlays would be almost the same. It is the longer lead weapons that explain much of the difference in these accounts.

## THE MAJOR FORCE PROGRAMS IN THE PPBS SYSTEM

Under the Planing, Programming, and Budgeting System (PPBS), all DoD activities fall into one of 11 Major Force Programs (MFPs). Each DoD program is identified by a six-character code, describing the MFP, cognizant service or organization, and other information.<sup>1</sup> The 11 program groupings existing under the present PPBS system are:<sup>2</sup>

**Program I—Strategic Forces.** Strategic offensive forces and strategic defensive forces, including operational management headquarters, logistics, and associated support organizations.

**Program II—General Purpose Forces.** Combatant force-oriented program elements other than those in Program I, including the command organizations associated with these forces, the logistics organizations organic to these forces, and the related support units deployed or deployable as part of the military forces and field organizations.

**Program III—Intelligence and Communications.** Intelligence, security, and communications program elements, including resources related primarily to centrally directed DoD support functions, such as mapping, charting, geodetic activities, weather service, oceanography, aerospace rescue and recovery, nuclear weapons operations, space boosters, satellite control, and so on.

**Program IV—Airlift and Sealift Forces.** Airlift, sealift, traffic management, and water terminal activities, both industrially funded and nonindustrially funded (including command, logistics, and support) units.

**Program V—Guard and Reserve Components.** National Guard and Reserve training units and individuals in support of strategic offensive, strategic defensive, general purpose, mobility, and support forces.

**Program VI—Research and Development.** All research and development programs and activities that have not yet been approved for operational use.<sup>3</sup>

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<sup>1</sup>For instance, this work was done under the auspices of program element (PE) or line-item 65101F—that assigned to The RAND Corporation's Project AIR FORCE—meaning it falls under MFP 6 (Research and Development), and that the USAF ("F") is the sponsoring service.

<sup>2</sup>These descriptions are derived from those appearing in *The Air Force Budget Process*, AFP 172-4.

<sup>3</sup>Research and Development differs from the appropriations title RDT&E in that it includes only those R&D expenditures that are not more logically assigned to a program

**Program VII—Central Supply and Maintenance.** Resources related to supply, maintenance, and service activities, both industrially funded and nonindustrially funded, and other supporting activities such as first- and second-destination transportation, overseas port units, industrial preparedness, commissaries, and logistics and maintenance support.

**Program VIII—Training, Medical, and Other Personnel Activities.** Resources related to training and education, accessions, personnel services, health care, permanent change of station travel, transients, family housing, and other support activities associated with personnel. Excludes training specifically related to and identified with another major program. Also excludes housing, subsistence, health care, recreation, and similar costs and resources in a program element, such as base operations of another major program.

**Program IX—Administration and Associated Activities.** Resources for the administrative support of departmental and major administrative headquarters, field commands, administration, and associated activities not accounted for elsewhere. It also includes construction support and other miscellaneous activities.

**Program X—Support of Other Nations.** Resources in support of international activities, including service support to the Military Assistance Program (MAP), Foreign Military Sales (FMS), North Atlantic Treaty Organization (NATO), etc.

**Program XI—Special Operations Forces (SOF).** Resources identified with SOF forces, including acquisition and operating and support costs. Also included are resources for Reserve and National Guard SOF units.

## **A SHORT DESCRIPTION OF GRAMM-RUDMAN-HOLLINGS II<sup>4</sup>**

The Balanced Budget and Emergency Deficit Control Act of 1985 (commonly known as the Gramm-Rudman-Hollings Act), as amended in 1987, calls for a balanced federal budget by 1993. It sets declining deficit targets for each fiscal year and specifies a procedure designed to achieve these targets. In 1990, the target is \$100 billion. For 1991 through 1993, the targets are \$64 billion, \$28 billion, and zero, respectively.

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appearing in another MFP. (For instance, R&D to develop a weapon prototype, say a fighter plane, would appear in MFP II). For this reason, MFP VI is typically smaller than the RDT&E appropriation.

<sup>4</sup>The following description of the Gramm-Rudman-Hollings process is taken from *Budget of the United States Government, 1990*, pp. 8-5 and 8-6.

According to the Act, the President's budget must propose receipts and outlays consistent with the deficit target for the budget year, and the budget must include estimates of total receipts, total outlays, the deficit, and the aggregate-level estimates using the same budget baseline rules that are specified for other reports required under the Act. Then, congressional action on the budget is supposed to ensure that the deficit target for that year will be met. If the target is not met, the Act specifies a process to sequester (cancel or withhold from obligation) budgetary resources to reduce outlays by the amount required to meet the specified target for the year ahead.

On August 25 of each year, the Director of the Office of Management and Budget (OMB) submits a report to the President and the Congress estimating the deficit for the upcoming fiscal year and the amount of net deficit reduction that has resulted from laws enacted and regulations promulgated. On October 15 he submits a revised report that reflects the effects on the deficit of any legislation enacted or regulations promulgated since August 25. If his estimates show that the projected deficit exceeds the specified target by more than \$10 billion (zero in 1993) and that the requisite amount of net deficit reduction has not been achieved through laws and regulations, he must calculate the amount of reductions in budgetary resources required to eliminate the deficit excess. The Act specifies rules for determining uniform percentage reductions for most programs subject to reduction and special rules for certain programs subject to reduction. Many programs are exempt from reduction. The Director of OMB must explain, in his initial and revised reports, any substantial differences between his estimates and the estimates provided to him and the Congress in initial and revised reports by the Director of the Congressional Budget Office. Events after October 15 that affect the deficit do not result in new or additional spending reductions under the Act.

The reports by the Director of OMB become the basis for the initial and final sequester orders issued by the President. The President's orders may not change any of the particulars in the Director's reports.

Budgetary resources have been sequestered only once since the Act was passed. That was in 1986. On November 20, 1987, the President issued a sequester order for FY 1988, but the order was reversed and the sequestered resources restored as a result of the enactment of the Omnibus Reconciliation Act of 1987.



## **Appendix B**

### **A BRIEF SURVEY OF HISTORICAL POSTURE TRENDS**

This appendix documents longitudinal trends in the U.S. defense posture over time, measured in terms of certain large-scale indicators. Since the focus of this Note has been on budgets—and given the size of that subject matter in itself—this appendix is necessarily elliptical in its description of historical force structure developments. The purpose here is not to analyze the reasons for changing posture over time, nor to relate posture size and constitution to budget levels; that is beyond the scope of this effort. For present purposes, the following general observations will have to suffice.

Posture tends to be less volatile than budgets over time, largely because the preservation of posture size is an important strategic and organizational goal of the individual services and of the DoD generally. It is easier to do just about anything—enhance readiness, modernize weapons, increase sustainability levels—than it is to constitute new posture (or to replace posture once it is gone).<sup>1</sup>

At a large level of aggregation, postures tend to be highly steady-state entities. Commentators have referred to certain magic numbers in posture design that exist over time, regardless of changes in the strategic situation, budgetary realities, and other key developments. These constants are an important fact of life in defense planning. These targets are not, as many would believe, the product of pure inertia, but rather the outcomes of meaningful tradition, analysis, etc.

Within given postures, and particularly since the end of the Vietnam drawdown, relationships among specific capabilities tend to converge (for instance, there is a fairly consistent relationship in the effort devoted by the Army to heavy vs. infantry forces, or in the tactical USAF among air superiority, multi-role, and other aircraft), except when external conditions intervene.

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<sup>1</sup>There is a widespread expectation that posture can either be held in reserve (actually in a reserve capacity, or in some latent status) or reconstituted should future needs so require. In fact, this is much more easily said than done, leading to the understandable tendency among many service planners to deplete existing posture rather than maintain fewer but more fully ready or equipped units.

In many though not all cases, there are relationships between budgets and posture that are worth reviewing. This important problem awaits a subsequent effort. For instance, certain trends in the cost of maintaining a given unit over time (a TFW, Army division, Navy battle group, etc.) exist for reasons that should enter into long-term budget planning.

Various posture mobilization capabilities (military ones, such as Guard and Reserve forces, and civilian ones, like the Coast Guard, CRAF, merchant shipping, etc.) provide a considerable degree of capability at fairly low cost. However, greater reliance on such forces has traditionally been inhibited by strategic and political concerns. The cost-effectiveness of such formations is often difficult to measure (as are comparisons between active and mobilization capabilities).

Direct costs of posture in hand—divisions, ships, wings, etc.—seldom come near explaining the size of a service or organization's budget. There are many indirect expenses involved in maintaining any posture (training base, logistical infrastructure, etc.), each of which varies considerably as a function of the size of the posture actually fielded. Certain overhead functions are also independent of the posture (for instance, headquarters, R&D).

Posture objectives usually exceed what is politically and financially feasible. This does not pose as much of a challenge to efficiency and effectiveness as does budgetary overextension, largely because the costs of major and enduring posture expansion tend to be so very far beyond reach, even given the most optimistic assumptions about resources. Consider the unprecedented Reagan-era budget upturn. Plans were made at the start of this period to expand posture (see Table B.1). Such plans still fell substantially short of what the JCS would like to have in hand, were it not constrained much by resources at all. Yet those modestly expanded posture objectives have already had to be abandoned.

The interested reader can use this appendix as an adjunct to the more detailed budget analysis appearing in the text. At the present time, we face the possibility of an extended period of austerity, the effects of which could be amplified by changing strategic, political, technological, and other circumstances. Thus, there may be an unprecedented degree of pressure on traditional force design principles. Next to the more immediate problem of defense procurement, whether or not to revamp the long-term posture plans promises to be one of the most interesting challenges before defense planners in the 1990s.

Table B.1

SELECTED GENERAL PURPOSE FORCE POSTURE OBJECTIVES COMPARED

	Late 1970s Available	Early 1980s Targets	1982 JCS JSPD "Prudent Force"	Revised FY90 Posture <sup>a</sup>
Active Army XX	16	18	25	17+
Active USMC XX (and Amphib Lift, XX-equivalents)	3 1+ lift	3 1.5 lift	4 >1.5 lift	3 1.3 lift
USN ships (including carriers)	500 (12)	600+ (15)	>700 (22)	560-575 (14)
USAF TFW- equivalents (including G&R)	36	40	57	35
Strategic airlift	310 (to add 210 C-17)	360 (to add 210 C-17)	632 total (unspecified)	360 (to add 210 C-17)

SOURCE: Secretary of Defense, *Annual Report*, 1982, 1984; *Armed Forces Journal International*, August 1982, p. 38.

<sup>a</sup>These are estimates of the largest posture that could be maintained indefinitely through the early and mid-1990s given recent decisions, if no future radical adjustments take place. If cuts do take place, these goals will decline further.

## MILITARY PERSONNEL LEVELS OVER TIME

Figure B.1 shows the historical strength of the U.S. active military personnel complement over time. Data are stacked by parent service.<sup>2</sup> This figure shows several developments. Demobilization from World War II force levels was precipitous. Personnel strengths decline from a level of over 12 million in 1945 to just under 1.6 million in only two years. Force levels remain at around 1.5 million until the outbreak of hostilities in Korea. Then, active personnel strengths (including federalized Guard and Reserve personnel) jump to a 1952-53 high of about 3.5 million.

Thereafter, forces again decline, but not so much. Personnel strengths throughout the rest of the 1950s do not dip below 2.6 million, which nonetheless is a figure substantially higher (by roughly half a million) than the peacetime levels maintained after the end of the Vietnam War, even though in many cases, fewer combat formations are being maintained. There is a minor jump around the time of the Berlin Crisis (again, reflecting in part the mobilization of substantial reservist strength), and then a much

<sup>2</sup>Army Air Force personnel are broken out and counted as USAF before the establishment of the U.S. Air Force as a separate service.

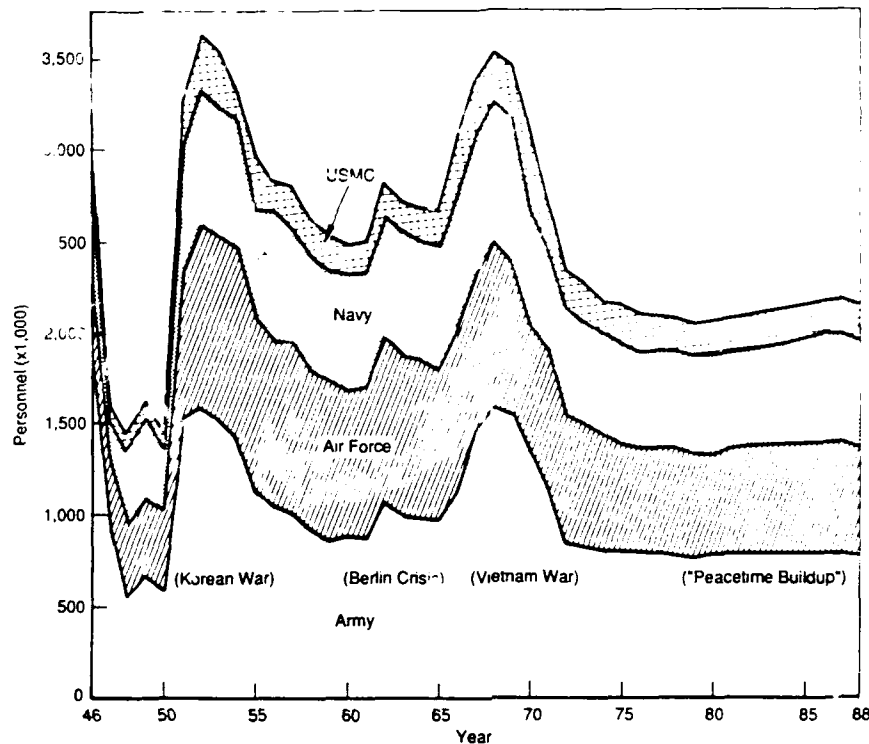


Fig. B.1—U.S. active military manpower, 1946–88

bigger buildup, almost to Korean War levels, during the Vietnam War. Following the Vietnam demobilization (when total strength levels declined from 3.5 million to a little over 2 million), force structure also shrinks. But after the 1970s U.S. posture (in terms of numbers of active military formations) rehabilitates *without* a corresponding increase in the number of active military manpower. For instance, service strengths across the boards in 1974 are just about identical to those found in 1987.

Three points are particularly noteworthy. First, active manpower strengths quite reliably reflect the state of the world, because active military manpower can be acquired much more quickly than other elements of posture strength (combat-ready formations, major weapons, etc.). To take one case in point, while the Vietnam War greatly reduced

the size of the Army's U.S.-based strategic reserve, there was no real net reduction in the number of worldwide Army personnel available but not committed directly to Vietnam.<sup>3</sup>

Second, the U.S. military has apparently become considerably more efficient over time in maintaining its posture. It takes fewer personnel over time to maintain an equal or even greater number of major posture components than it did in the past (especially in the 1950s). This is a consequence of the increasing costs of personnel over time, the reduction in the size of certain overhead and nonposture related personnel complements, the reduction in the number of personnel considered noneffective at any given time (including those AWOL, in transit, incarcerated, confined as patients, etc.), the greater use of civilians for many jobs, and the increased professionalism of the military, particularly after the institution of the All-Volunteer Force.<sup>4</sup> This efficiency was demonstrated in the mid-1980s, when the Army was able to establish two new active divisions without increasing overall troop end-strengths.

Third, there are what might be called natural levels of military personnel in modern times—given recent resumes of strategic responsibilities, missions, forward deployments, etc. The steady-state strengths for the different services are apparent in Table B.2. This table also provides some summary data on active armed forces strength, grouped by logical epochs.

### **U.S. Reserve Personnel Strengths**

Figure B.2 shows (again, in a stacked format) levels of high priority (paid-drill, selected reserve personnel) over the period 1956–88.<sup>5</sup> Army reserves were a fairly low priority throughout the 1950s, even though as many as 50 Guard and Reserve *divisions*

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<sup>3</sup>Of course, there were selective problems for Army manpower planners at this time, including shortages in critical skills (helicopter pilots, senior NCOs, etc.), reconfigurations in training programs that lowered Army readiness for non-Vietnam contingencies to some degree, and the like. But in terms of numbers of bodies, the United States showed here, as before, that it could acquire the personnel needed in the event of crisis or actual contingencies.

<sup>4</sup>Again, although Army strengths in the late 1950s were higher than those of the late 1970s and early 1980s (860,000–1,000,000 as opposed to 770,000–780,000), perhaps one-third of these personnel were generally conscripts. Thus, the careerist portion of the Army in the 1950s was smaller than it was two decades later. Increasing the representation of careerist personnel improves quality, reduces overall personnel needs, reduces the need for training and other kinds of overhead, enhances readiness, etc.

<sup>5</sup>Because of the widespread mobilization of reserve personnel for Korean War and NATO buildup requirements, data before 1956 would include too many statistical anomalies.

Table B.2  
ACTIVE MILITARY PERSONNEL LEVELS, BY EPOCH  
(Thousands of personnel)

Year or Epoch	All DoD	Army	USAF	Navy	USMC
1945	12123	5985	2282	3381	475
1946	3030	1435	456	983	156
1947-50	1526	623	381	437	85
1951-54	3435	1516	924	770	225
1955-61	2659	948	878	644	189
1962-65	2712	997	859	666	190
1966-71	3210	1389	850	698	273
1972-80	2128	853	546	537	192
1981-88	2133	776	596	565	196

were then counted on the books. Predictably, reservist strengths grow somewhat at the time of Vietnam, as some saw the G&R as an alternative to active military service in an unpopular war.<sup>6</sup> Subsequently, the Army reserve posture grows steadily: By 1988, the number of personnel on high priority reserve status for the first time actually exceeded the number of personnel on active Army duty.

The overall USAF National Guard and Reserve trend grows steadily over this entire period (and is reflected in the posture). The Navy Reserve remains more constant over the long run, as does the USMC Reserve. The G&R has become more capable over time and has played a proportionately greater role in overall U.S. strategy. This will continue in the future should budget realities, arms control regimes, and other developments lead to cuts in the size of active U.S. posture.

## HISTORICAL U.S. ARMY FORCE STRUCTURE

Of all the services, the Army has most reflected the consequences of changing external requirements in terms of its posture, personnel levels, etc. over time. The Army resides at a low proportional share of the budget during times of low international stress, but increases the most, proportionately, when the requirements of an external

<sup>6</sup>Numbers dip around 1968, but this is because of some limited reserve mobilizations following the Tet Offensive, the capture of the *Pueblo*, and the Soviet invasion of Czechoslovakia.

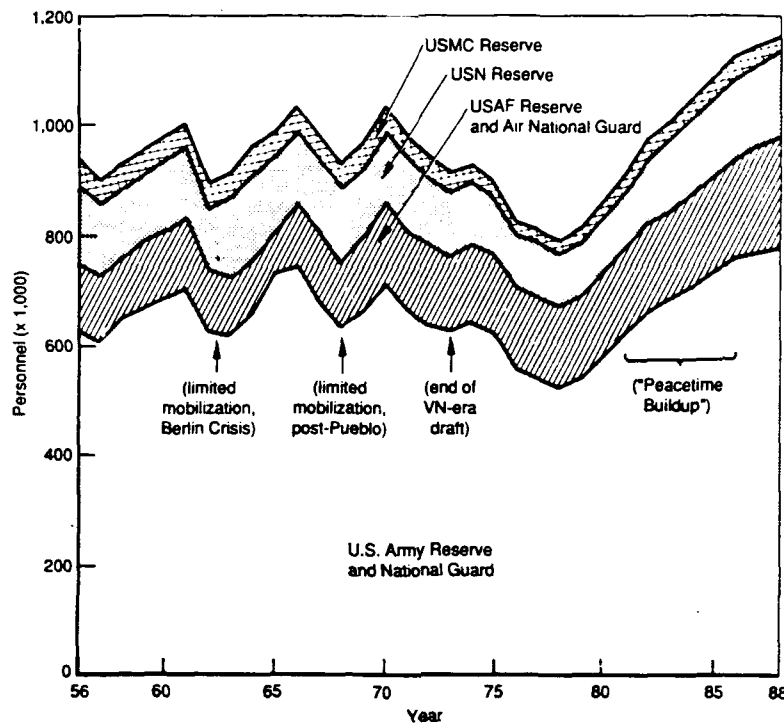


Fig. B.2—Selected U.S. reserve personnel strength, 1956–88

contingency so demand. This is apparent not only in overall force size, but also in force mix (the latter being often quite dynamic even during peacetime). In short, the Army, among the U.S. services (and with the partial exception of the Marine Corps) is truly the U.S. mobilization service.

Accordingly, Fig. B.3 shows the historical strength of the U.S. Army over time, measured by divisions, by type of unit. The expansions and deflations in posture occasioned by the Korean and Vietnam Wars are obvious, as are the Berlin and Cuba emergencies and Reagan administration peacetime buildup.<sup>7</sup> Activated Guard and Reserve divisions are shown by the shaded areas.

The Army grew from a post-World War II nadir of 10–11 divisions (many in conditions of considerable unreadiness), to a posture of 20 divisions during and immediately following the Korean War, after which it declined to 14 active divisions.

<sup>7</sup>Figure B.3 shows the number of active divisions on the rolls as of the middle of each calendar year shown.

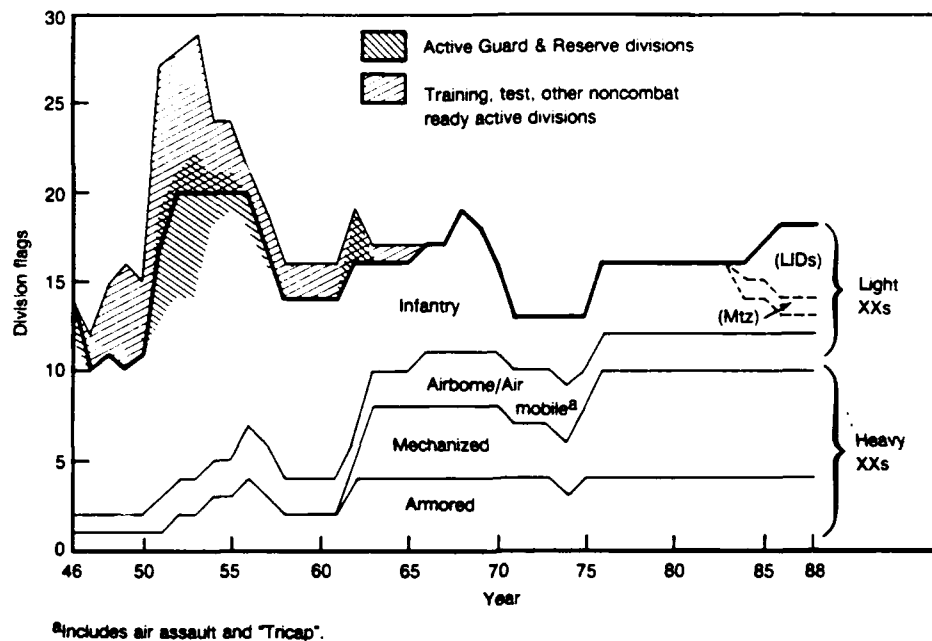


Fig. B.3—U.S. Army active division structure, by type, 1946–88

During the Berlin crisis, the posture expanded when two National Guard divisions, one infantry and one armored, were called to active duty, and then during the Vietnam-related buildup. Following the Vietnam War, the number of Army divisions plunged to 13 during the early 1970s. A rebuilding program expanded this posture to 16 divisions (although several of these relied on "round-out" brigades and other units from the Guard and Reserve). This 16 division force was consolidated later in the 1970s. Most recently, the posture has expanded to 18 active divisions, although these were created without the addition of new personnel.

Utilization of Guard and Reserve major formations declined in contingencies. Eight Army National Guard divisions, for instance, were federalized to meet the dual requirements of the Korean War and the expansion of U.S. force structure in NATO from one to five divisions after the establishment of that alliance in 1949. Two divisions were called up at the time of the Berlin crisis. After that, no entire division was ever called up—at the time of Vietnam, the JCS made such a request to President Johnson, but



he rejected the idea, fearing popular reaction to this move would undermine support for that conflict.<sup>8</sup>

Also apparent is the changing mix of division types over time. Before the 1960s, the Army consisted almost completely of light divisions—"straight leg" infantry and airborne forces (since both Korea and Vietnam were primarily infantry wars, the buildups in response to those contingencies were almost exclusively in this area). With the steady growth in the importance of the NATO contingency, and the better understanding of probable Soviet strategy for a NATO-Warsaw Pact war, the number of heavy divisions (armored and mechanized infantry) grew considerably. Indeed, the Army became a mostly heavy force just after the end of the peak Vietnam years, and has remained so to this day.<sup>9</sup>

There was also considerable experimentation in division types over time (though many of the details are not clear from this figure). After 1960, for instance, the concept of air mobility was first tested (with the 11th Airborne Division, which was not combat-capable, and therefore is not included) and then adopted and used in the Vietnam conflict. Most recently, the types of light infantry divisions proliferated (both strictly light infantry, though one of these is counted as a mountain division and another is optimized with Alaskan requirements in mind, and also the 9th Infantry, Motorized).<sup>10</sup>

The division, of course, is the basic major unit of Army force structure. Not shown in this portrayal are many types of other ground combat formations (including separate brigades, special forces and ranger units, etc.), along with many different kinds of aviation, missile, air defense, artillery, and other units. To give a better feel for the overall size and structure of the Army (including major nondivisional combat units), and also to show the relative emphasis of different regional priorities, Fig. B.4 shows the

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<sup>8</sup>Two National Guard brigades were, however, called up during 1968 and 1969, but the rationale for this was mainly to respond to the *Pueblo* crisis (and to rehabilitate a jeopardized Army strategic reserve posture).

<sup>9</sup>The most recent major contingency for which the Army has prepared—one in Southwest Asia—has also placed a premium on mechanized forces.

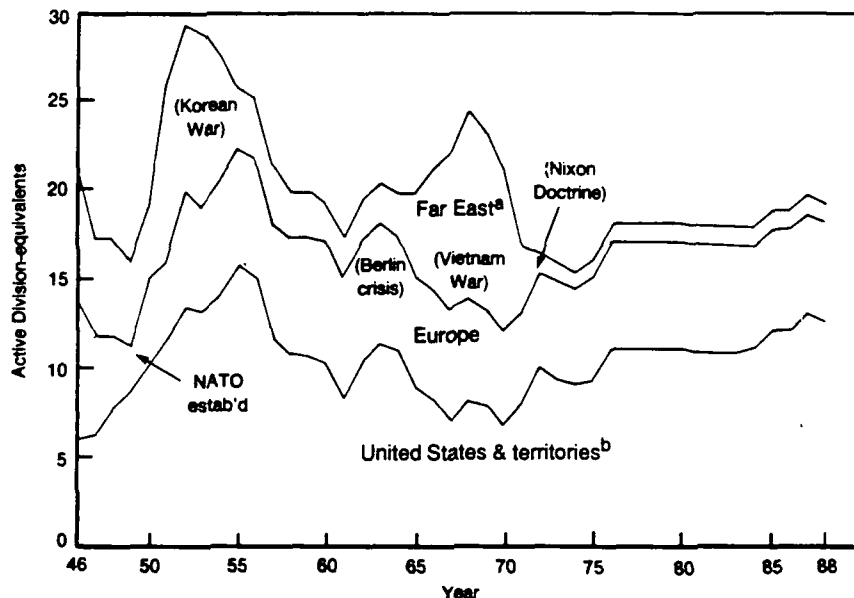
<sup>10</sup>An impressive number of reorganizations and force structure experiments have taken place over time. These include the so-called "Pentomic division" of the mid and late 1950s, the air mobile/air assault concept, and the more recent light infantry divisions and motorized, high technology division test-bed. The 1st Cavalry Division evolved in structure four times in about one decade, from basically an infantry division (while it was in Korea), to an air assault division (in Vietnam), to an experimental, helicopter-intensive "Tricap" division in the early 1970s, and finally to a full armored division structure after 1974.

Army posture by deployed theater including certain nondivisional combat units. Units shown are active division equivalents; separate brigades and regimental formations are included in the deployed total. Moreover, when a brigade-sized unit has been removed from its parent unit (for forward positioning in NATO, say, or independent combat operations as in Vietnam), that regional theater is credited and the U.S. reserve slice is debited accordingly. Finally, active homeland-based units are also docked by the appropriate number of brigades in those cases where there is reliance on National Guard and Reserve elements for roundout forces of at least a brigade's size.<sup>11</sup>

Figure B.4 provides several insights on Army priorities and responsibilities over time. Greatest is the enduring importance of the forward NATO deployment over time. This force has fluctuated only modestly from year to year. It reflects the centrality of this contingency in U.S. contingency planning. Conversely, U.S. deployments in the Far East fluctuated over the years. From an initial force of about five divisions in Korea and Japan, this number declined modestly by 1950. However, divisions in Korea were withdrawn to Japan, and many have cited this as one factor inspiring the North Korean invasion of the South in June 1950. Following the end of the war, the United States maintained a three-plus division force in Northeast Asia until 1957, after which one

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<sup>11</sup>The subdivisational units shown represent several changing definitions over time. Before the mid-1950s, the main nondivisional units were called Regimental Combat Teams—a regiment (usually infantry), plus various supporting elements. The unwieldy and short-lived Pentomic organization introduced the idea of "battle groups" (five to a division, with neither brigades nor regiments nor battalions). After the abandonment of this concept, most separate units were redesignated as brigades under the reorganized "ROAD" division concept. Throughout this period, there have been several armored and one air cavalry regiment in the active force structure. This figure includes the new 75th Ranger Regiment, but no Special Forces groups. "U.S. and Western Hemisphere" includes forces stationed or deployed in CONUS, Alaska, and Hawaii (Hawaiian forces are ordinarily not counted as FORSCOM units, but rather WESTCOM units, but here they are counted as U.S.-based ones), the Canal Zone, Puerto Rico, the Dominican Republic, and so on. The Far East geographic category includes forces in Korea, Vietnam, Okinawa, and until 1957, Japan. The Europe category includes units in NATO (after 1949), and before that, in Germany, Austria, and Italy. This figure must include certain estimations of strength, to accommodate changing definitions of units, planning and organizational principles, varying terminology, and widely varying philosophies about the strength of units over time. For instance, earlier in this historical view, many units were chronically understrength and would have required absorption of independent combat formations to achieve anything like a full combat-ready strength. This practice of selective hollowization has been followed at other times, of course. It is difficult to convey a truly accurate picture of what units are really effective to any given degree. Since the late 1970s, however, it has been Army policy that active units should be maintained at as close to a full level of peacetime readiness as possible.



<sup>a</sup>Korea, Japan, Okinawa, Philippine Is., S. Vietnam.  
<sup>b</sup>Alaska, Canal Zone, Hawaii, Puerto Rico (also Dominican Republic).

Fig. B.4—U.S. Army, active strength by region, 1946–88

division was withdrawn. When the Guam Doctrine was announced in 1969, one of the two infantry divisions in the Eighth Army in Korea was removed.<sup>12</sup> Thus, following the combined effects of the Vietnam War drawdown and the removal of forces from Korea, the Far East represented only a modest slice of total U.S. deployed forces over time.

What remains, with certain exceptions, can be considered the U.S. homeland based strategic reserve force.<sup>13</sup> Many of the divisions in that reserve have, of course, been more or less earmarked for certain contingencies, particularly NATO. Indeed, there are currently brigades of two U.S.-based units forward deployed in Germany, and there are prepositioned stocks for six U.S.-based divisions located in Western Europe. For the most part, it has been supposed that most, if not all, of the heavy forces would be dedicated to NATO (or, under certain circumstances, to Southwest Asia). In contrast, the lighter parts of the U.S. posture have been in some ways more strategically flexible over

<sup>12</sup>An effort by President Carter to remove the last Korean division in 1977 met with failure.

<sup>13</sup>Some Western Hemisphere units were however actually deployed, e.g., the 82nd Airborne Division went to the Dominican Republic in 1965.

time. Indeed, part of the rationale for creating the so-called light infantry division structure in 1984 was to make U.S. infantry units more deployable.

### Major Army Guard and Reserve Units

U.S. Army Guard and Reserve forces are not shown separately in either Fig. B.3 or B.4, chiefly because of the different philosophies about the roles of such forces, their readiness, and so on, prevailing over time. As Table B.3 shows, earlier in the historical period surveyed, the United States maintained an astonishing number of Guard and Reserve divisions (as many as 50 divisions). However, not many of these could really be considered appropriate for anything other than a World War II-style mobilization scenario. Nonetheless, on account of the dire state of the active posture at the time of the Korean War, some eight National Guard divisions and numerous smaller units were federalized. In the mid-1950s, a basic reweighting of missions was undertaken, with the National Guard becoming the primary repository of combat divisions, and the Army Reserve being realigned more to provide smaller units and trained individuals to existing units. Some 13 Reserve divisions were formally designated as training divisions then.

Table B.3

#### SELECTED MAJOR ARMY NATIONAL GUARD AND RESERVE FORMATIONS (Excluding forces on active duty)

	1947	1952	1957	1962	1967	1972	1977	1982	1987
Army reserve									
Divisions	19	27	10	10	0	0	0	0	0
Separate brigades	—	—	—	—	4	3	3	3	2
Army National Guard									
Divisions	26	21	27	27	23	8	8	8	10
Armored cavalry regiments	—	4	7	7	7	4	4	4	4
Separate brigades	—	4	8	8	7	18	17	18	14
"Nominal" posture <sup>a</sup>									
Divisions	45	48	37	37	23	8	8	8	10
Division-equivalents	15	16	14	14	10	14	15	16	17

<sup>a</sup>"Nominal" here refers to the fact that many, if not all, of the divisional formations did not represent any very realistic sort of "in hand" combat capability. During the mobilization of ARNG divisions for Korea, it took some 15 months to move forces from activation to a state of dubious combat readiness. The role of National Guard and Reserve units has, historically, been highly controversial and heavily politicized. For a discussion of both the history of these enterprises and their current organization, see Binkin and Kaufmann, 1989.

Subsequently, and after much political controversy, the Army Reserve was stripped completely of its divisions. Analogously, recognizing readiness and equipment deficiencies, Army National Guard divisions were greatly reduced in number (many were reconfigured as separate brigades, and some of these were assigned roundout responsibilities beginning in the mid-1970s). The overall Guard and Reserve posture has remained constant over time (although two new ARNG divisions were added in the mid-1980s, again without increases in the number of personnel).

### **NAVY GENERAL PURPOSE FORCES OVER TIME**

It is almost impossible to overemphasize the importance of World War II on Navy planning in subsequent years, from several points of view (intellectual, operational, posture concepts, etc.). The U.S. Navy emerged from World War II having a fully endorsed and verified posture of missions that have remained the core of Navy planning since then (including fleet operations of several kinds centering around carrier battle groups, escort of convoys to forward theaters, amphibious power projection, peacetime presence, land-based maritime surveillance, and so on).<sup>14</sup> From time to time, the Navy has been criticized for what some have called inordinate devotion to its historical antecedents, particularly given the continental nature of our postwar contingencies and the steady upward movement in the cost and complexity of the forces designed to accomplish the Navy's roster of missions.<sup>15</sup> But the fact remains that the U.S. Navy has remained a formidable force, second to none even at its lowest postwar points. The Navy has also (although with some lag times) responded flexibly to certain off-design scenarios.<sup>16</sup> Finally, the Navy remains strategically flexible, able to maintain forward deployments but shift these as conditions require on short notice.

Driving these realities to a certain extent, and certainly dominating the Navy's posture planning over most of the post-World War II period, was another legacy of that conflict: the considerable force-in-being remaining after 1945. Ships last a long time (from 20-25 years for submarines and minor surface combatants to as long as half a

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<sup>14</sup>Only the strategic deterrence mission is substantially new among the Navy's roster of roles and missions; and initially the Navy sought to perform this mission in what might be called a traditional way—by carrier based bombers.

<sup>15</sup>For one leading case-in-point, see Komer, 1983.

<sup>16</sup>Examples include the constitution of a brown water riverine and coastal maritime force during the Vietnam War, and the Persian Gulf deployments.

century or more for modern big deck carriers and battleships). If the average lifetime of all ships in the fleet is some 25–30 years, the obsolescence of that force after World War II coming in about 1970 ( $\pm$  five years) played a major role in the constitution of the U.S. Navy's force structure over the past forty years. Thus, at a very large level of aggregation, the key development in the Navy's posture over time has been the problem of balancing the phasing out of this legacy in posture with the introduction of new, balanced, and affordable modern force structure.

Figure B.5 shows, at a high level of aggregation, the evolution of the Navy's posture over time. First of all is the very large residual World War II force (much of which was returned to active service after the outbreak of the Korean War). Subsequently, the Navy's posture predictably declined at around the 1970 point, when the aging of World War II-vintage ships combined with the resource diversion to the Vietnam War to shrink the Navy from 800 ships down to the 500–600 ship range. Again within these very broad categories of forces is the relative primacy of warships (carriers, surface combatants, and submarines) as a replacement priority. The amphibious fleet

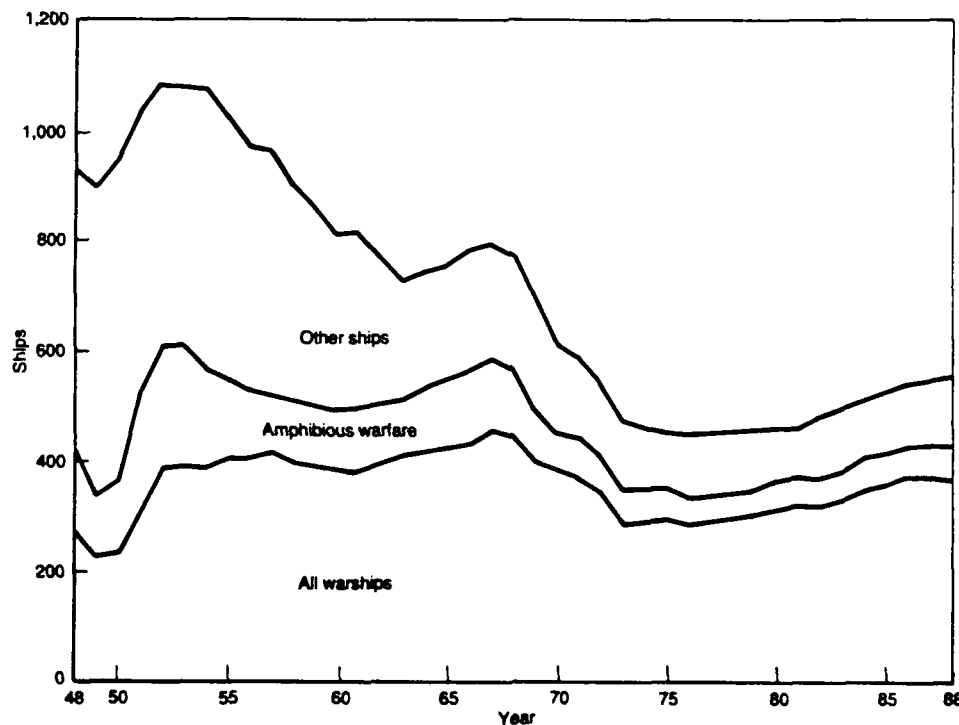


Fig. B.5—USN force structure, 1948–88

declined from more than 120 ships during the Vietnam War down to 60 or so ships, where it has remained since that time. And there is a very substantial drawdown in "other ships," including a broad range of capabilities, major and minor alike.<sup>17</sup> After stabilizing, the entire fleet remains roughly the same over time in internal mix, although it has grown somewhat since 1980 (largely on account of the procurement of certain low-end ships—e.g., the *Perry* class FFG).

Figure B.5 does not indicate the consequences of many individual and class modernization and rehabilitation programs (in lieu of new procurement), nor does it reveal certain transitory developments and emphases. Among these are temporary booms in construction for pertinent amphibious and mine warfare vessels during mid-level contingencies, the increasing capability of individual ships, the capabilities of Naval Reserve Forces, the increased automation of modern ships, and certain initiatives to move toward a more nuclearized Navy (which were abandoned, with the exceptions of submarines and carriers, on account of their high costs). Nor does this figure include the marginal but certainly not negligible contribution of the U.S. Coast Guard (whose assets would shift from Department of Transportation to U.S. Navy control in wartime), or for example, some B-52s used for sea surveillance and control.

Budgetary and other resource constraints (particularly manpower and O&M constraints) have combined with the Navy's overall strategic resume to dictate a concept for steady-state posture maintenance that has been fairly constant for a decade and a half now. Indeed, contemplating the decline in the fleet as the Vietnam War drew down, Navy planners in 1974 first conceived the notion of a steady-state 600 ship fleet. Though there have been some generally modest reconfigurations within this total fleet target, it has remained more or less the same since then.<sup>18</sup> Thus, the Navy's core fleet target has remained more or less 15 carrier battle groups (a carrier, with some 6–8 supporting combatants and a dedicated underway replenishment (UNREP) ship), the capability to

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<sup>17</sup>Several "other ship" types—for instance, minesweepers—were retired and not replaced by other ships, but rather by capabilities of other kinds—e.g., helicopter-oriented antimine capabilities. Many marginal support vessels were similarly put out to pasture. Of the larger fleet support vessels in service today (e.g., tenders) many actually date from World War II and are therefore part of that posture legacy.

<sup>18</sup>For instance, the number of escorts per battle group has changed modestly, and the number of carriers has occasionally been adjusted. More radical proposals to change the way the Navy structures its posture—for instance, the substitution of small conventional carriers (and even through-deck cruisers) for big-deck, nuclear-powered carriers—have all met with failure.

escort some seven convoys per month and some 1–1.5 MEFs, some 90–100 SSNs for a range of duties (maintenance of ASW barriers, offensive ASW operations, direct support of carrier groups, etc.), some 600–650 SLBM tubes aboard 25–40 SSBNs, assorted other support ships (and escorts for them, as required), and various fleet-wide support capabilities (mine warfare, ocean surveillance, patrol, etc.).

Given cost data, life-cycle information, etc., it is fairly simple to compute the long-term replacement and maintenance requirements for such a force. Basically, at 1970s spending levels, a force of around 500 ships is maintainable over the long haul. For early and mid-1980s spending levels, a force of 600 ships is probably possible. However, the Navy buildup attempted under the Reagan administration to a force of 600 "deployable" battle ships was doomed to failure, because of the lack of staying power of the budget and because the Navy chose to emphasize a very costly set of ships in its 1980s construction plans. Today, the key issue is what level—probably somewhere between 525 and 575 ships—can be afforded and maintained over the long term, given assumptions about individual ships costs and so on.

Figure B.6 provides a close-up view of the combatant slice of the overall USN force structure. This, of course, represents the majority of ships in the fleet, it corresponds most directly to the Navy's ability to accomplish its missions, and it is the part of the posture that must be modernized on a routine basis.<sup>19</sup> Overlaid for reference is the size of that posture remaining from the legacy of World War II.<sup>20</sup> This figure provides a sense of what represents a balanced Navy force, and also of what shipbuilding programs have yielded in terms of current and capable force structure. Since the end of the residual World War II posture bust in 1975, the fleet has grown, on average, at a rate of about seven warships per year.<sup>21</sup>

<sup>19</sup>That is, technical requirements (particularly concerning submarines), maintenance burdens, and changing operational circumstances all demand the regular updating of this component of the force.

<sup>20</sup>Which has essentially disappeared after 1975, save for a couple of CVs and the recommissioned battleships.

<sup>21</sup>To maintain a steady-state 600 ship-type fleet requires the construction (excluding SSBNs) of one-third CVs, nine surface combatants, and four or five SSNs per year. For a 500 ship fleet, the figures are about one-fourth CVs, eight surface combatants, and four SSNs per year. The difference is not much—about 1–1/2 combatant ships per year on average (currently, the difference would amount to about \$1.5 billion per year in SCN). But maintaining this force (or the nonwarship parts of it) is not the problem, now or at any other time. The problem lies in building up to the force *in the face of serious existing block obsolescence problems*.



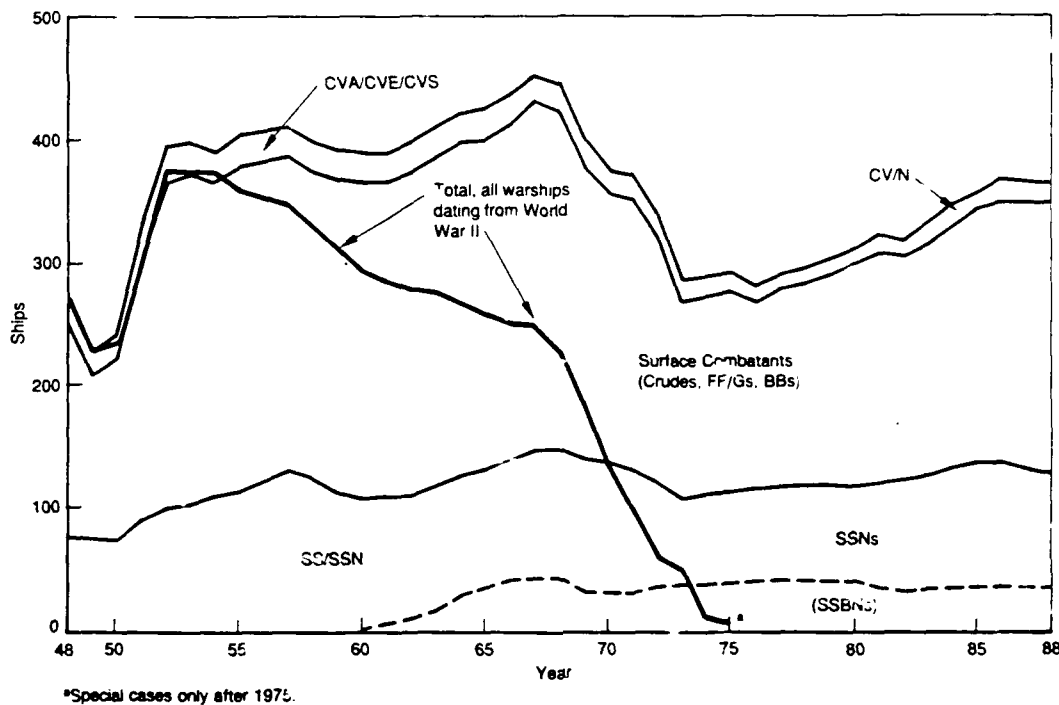


Fig. B.6—Constitution of USN combatant fleet, 1948–88

Several factors worth noting mainly involve unit costs (within the context of the quality/quantity issue). One of the reasons that the post-World War II posture actually showed a sustained growth rate is that many low-end surface combatants (including some 130 frigates displacing an average of 3.7 thousand tons each) were bought between FY51 and FY84, at an average price of roughly \$300 million each (in FY88\$). However, as the Navy rightly points out, these ships are not necessarily fully appropriate to all the rigors of blue-ocean carrier battle group operations. Hence, the Navy has, over the past eight years, stressed a much higher grade of warship (notably the *Ticonderoga* Class missile cruiser), and its plans for the 1990s similarly envision very capable but quite costly new submarines and destroyers (at perhaps \$1 billion a copy). Compared with historical SCN budget levels—even those of the 1980s, never mind those likely to prevail in the coming decade—it is uncertain what looms for the posture in the long term.

Table B.4 indicates acquisition rates for Navy warships over three and a half decades. Using typical life-cycle data, on average, we have been buying roughly enough carriers, submarines, and surface combatants to nominally meet something like the long-

Table B.4  
ACQUISITION OF NAVY GPF WARSHIPS, 1953-87  
(During half-decade intervals)

	1953-57	1958-62	1963-67	1968-72	1973-77	1978-82	1983-87	1953-87
CV/N	5	2	2	1	1	1	2	13
SSN	18 <sup>a</sup>	17	31	17	19	8	17	127
CG/DDG <sup>b</sup>	11	20	1	4	1	11	18	66
DD	26	15	0	16	14	1	0	72
FF/G	14	11	54	0	18	30	3	130
Total	74	65	88	38	53	51	40	408
Memo								
All Surf	51	46	55	20	33	42	21	268
% HiEnd	22	44	2	20	3	26	86	25

<sup>a</sup>Nine of these were conventionally powered.

<sup>b</sup>Including CGN.

term sustainment requirements of the 600 ship fleet. However, the mix of high-end surface combatants has historically been inadequate given long-standing Navy posture objectives. Further, of the total of 395 ships (less carriers) acquired over these 35 years, 58 percent (227) were bought in the first 15 years. Taking into account force obsolescence, we would need to buy 8-10 submarines and as many as 15 surface combatants a year to maintain these historical buy rates. This is unlikely. The alternatives involve a return to a high-low mix, extension of the life of as many aging surface combatants as possible, and changes to current battle group planning standards.

### USMC Capabilities

The U.S. Marine Corps, a component of the Navy Department, has an interesting post-World War II history. In 1945, the United States maintained six USMC divisions, and a total Corps of 475,000 men. But after the war, many questioned the need for a land warfare force that some believed duplicated Army missions and others suspected to be wedded to an operational concept (amphibious assault) not so likely to be required in the austere postwar setting. Proponents of the USMC inserted into the National Security Act of 1947 (actually, its 1952 amendment) a requirement that three active USMC

division/wing teams be maintained.<sup>22</sup> In the early 1960s, the U.S. Marine Corps Reserve was reconfigured from a group of individual replacement personnel into a complete reserve division. With the exception of the peak Vietnam years (FY66-69, when the 5th Marine Division was reactivated), this posture of three active and one reserve division has remained constant. Because of Vietnam requirements, USMC personnel strength grew from an average of 190,000 men over 1962-65 to an average of 285,000 men during 1966-70. After 1974, Marine manpower has not departed from the range of about 190,000-200,000 active personnel and about 35,000-45,000 or so reservists.

Over time, the USMC has responded to widely varying combat and other requirements. One USMC division was deployed in Korea; at the time of the offshore islands crises with China in 1958, a division was readied for deployment to Formosa; and at the height of the Vietnam War, two divisions and a separate USMC regiment were in Vietnam. The Marines were subsequently designated as a key component in, first, the Rapid Deployment Force, later called the CENTCOM contingent. The expected utilization of the USMC has also changed. For one thing, amphibious assault shipping has generally declined, so that only a fraction of all Marine Forces could be actually deployed against opposing forces. USMC force elements have been assigned other new missions: For instance, equipment has been prepositioned in Norway for the deployment of a Marine brigade there in the event of a NATO-Warsaw Pact scenario.

## **U.S. AIR FORCE THEATER FORCES OVER TIME**

U.S. theater air forces have undergone a number of doctrinal, posture planning, and other shifts over time. Originally, the role of USAF tactical combat forces was to support the larger U.S. nuclear strategy and only secondarily to provide traditional, direct support to ground forces. Thus, the emphases of force design in the 1950s were long-range nuclear-strike aircraft (such as the F-105), and various interceptor forces (suited to continental or theater air defense as the case may be). However, with changing U.S.

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<sup>22</sup>A division/wing team was known as a Marine Expeditionary Force (MEF) until the time of the Vietnam War, when, to remove the connotation of an imperialist capability, the term Amphibious was substituted for Expeditionary. Recently, that terminology has reverted to its pre-Vietnam form. A Marine division is a fairly large infantry formation, and a Marine Wing is about twice the size of a USAF TFW. USMC wings contain a mix of combat aircraft of several types and assets of other kinds—attack and transport helicopters, fixed wing transport aircraft, and so on. There are about 300 aircraft of all kinds in a modern USMC wing, of which about half are combat models.

strategy, the lessons of the Vietnam War, and many other factors, the TAF planning framework changed dramatically during the 1950s. (See Fig. B.7 for a profile of the USAF TAF over time.)

Initially, the USAF responded to requirements by the acquisition of Navy aircraft models not oriented so much to the types of nuclear-related missions for which the USAF prepared in the 1950s (the F-4 and A-7). In the 1970s the USAF acquired its first true generation of theater-warfare aircraft: the F-15 air superiority fighter, the lower-cost F-16 multi-role aircraft, and the very inexpensive A-10 close air support airplane. This modernization process considerably improved U.S. Air Force capabilities for conventional warfare, particularly in NATO.

In the late 1970s and early 1980s, new aircraft programs were launched to replace the posture acquired in the 1960s and 1970s. The F-16 continues to replace the F-4 (and has also been selected as a follow-on to the F-4 for homeland air defense, tactical reconnaissance, and defense suppression; the F-16 may also be configured for near-in

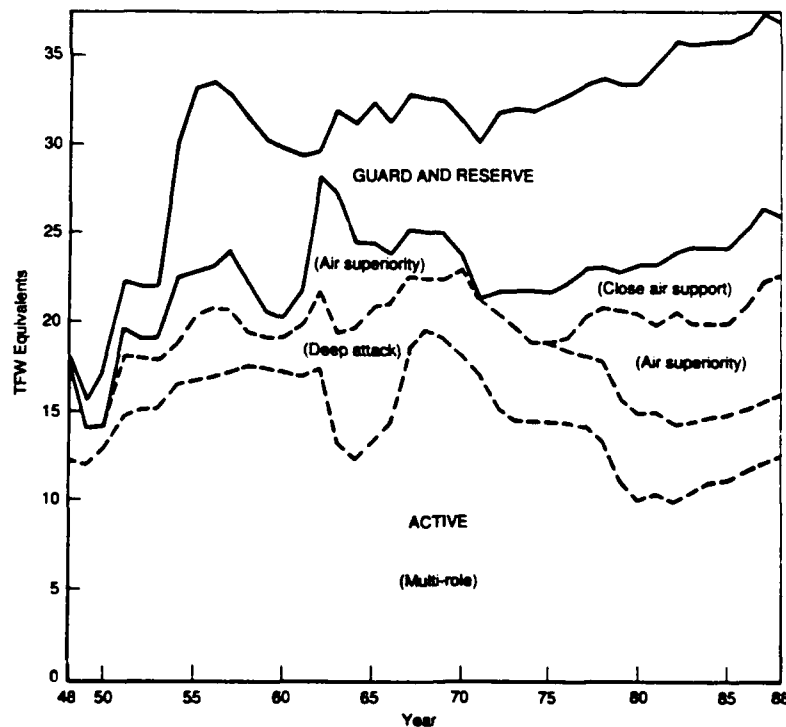


Fig. B.7—U.S. tactical Air Force posture, 1948–88

ground attack). An Advanced Tactical Fighter program was begun to replace the F-15. The F-111 aircraft continues to be a viable platform (indeed, the force of F-111s will be augmented by the transfer from SAC of FB-111A aircraft), but a redesigned F-15E is being bought to enhance U.S. deep attack capabilities. And some new specialized platforms (for instance, the F-117 stealth fighter) have also been recently revealed.

Tactical aircraft represent one area of U.S. planning in which cost considerations have motivated many posture decisions. In particular, the operational context for tactical air operations has changed substantially over time: Aircraft must do more, against a greater threat, operate in more demanding environments, etc. Consequently, the costs of a given unit of posture have tended to grow over time, with the net result that unless deliberate steps are taken to prevent it follow-on generations of aircraft can cost twice what their predecessors did. This cost escalation places predictable pressure on the USAF when it comes to the maintenance of a constant end-strength. Such pressures explain why the USAF was unable to expand its posture from a level of 36 active and reserve wings to goals of either 40 or 44 TFW in the 1980s.<sup>23</sup>

Various techniques, exploited with considerable success, to suppress the phenomenon of end-strength have included placing more emphasis on Guard and Reserve forces, the acquisition of a high-low mix of aircraft, maintenance of aircraft in the posture for longer periods of time, modification of existing aircraft and designs in lieu of new procurement, equipping of aircraft with more capable weapons and other systems, and the acquisition of certain lower-cost specialized aircraft (such as the A-10). Even so, the maintenance of a fixed posture has become steadily more difficult over time. That has placed a burden not only on the TAF, but also on other posture elements that might compete with TAFs for resources. Table B.5 provides a basis for determining the compatibility of posture objectives and acquisition histories over time, just as Table B.4 did for ships.

As with the Navy SCN program, the data in Table B.5 can be manipulated to reveal several different conclusions of interest. Most important of all results, of course, is the steady downward tendency in buy rates over time. This reflects increasing unit

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<sup>23</sup>The 1989 target became 35 TFW. As this document goes to press, official forecasts of TAF goals by FY97 run to about 28 wing-equivalents, while more pessimistic projections put the figure in the 22-26 TFW range.

Table B.5  
ACQUISITION OF USAF TACTICAL AIRCRAFT, 1953-87  
(During half-decade intervals)

	1953-57	1958-62	1963-67	1968-72	1973-77	1978-82	1983-87	1953-87
Air superiority <sup>a</sup>	1925	210	0	0	380	313	201	3029
Deep attack <sup>b</sup>	77	646	280	262	24	0	0	1289
Multi-role <sup>c</sup>	4364	29	1575	450	72	725	764	7979
Close support <sup>d</sup>	0	0	62	653	247	542	0	1504
Total	6366	885	1917	1365	723	1580	965	13801

<sup>a</sup>Includes dedicated strategic air defense interceptors, F-101, F-102, F-104, F-106, F-15, except F-15E (deep attack variant). F-15 to be replaced by Advanced Tactical Fighter.

<sup>b</sup>F-105 and F-111, excluding FB-111A.

<sup>c</sup>Includes F-84/86/89, F-100, F-4, F-16 (advanced versions of the F-16 are still in production).

<sup>d</sup>A-7, A-37, and A-10.

costs of aircraft, their individual superiority in capability, their longer expected service lives, the utility of programs to upgrade older aircraft in lieu of new procurement, etc. The decline in air superiority resources after the 1950s is evident, as is that of deep attack (after the waning of Massive Retaliation and then Vietnam). Close air support capabilities rise as external circumstances (Vietnam and, later, NATO rearmament) require. Multi-role aircraft play an anchor role.

Of greatest interest for the future are more recent buy rates. To maintain a TFW over a nominal 20-year period requires us to purchase about 130 aircraft in total.<sup>24</sup> Thus, to maintain a posture of 36 TFW requires us to buy 234 aircraft a year; to maintain 40 TFW (the Reagan objective for a time) requires a 260 airplane a year buy. Over the period 1968-87, we were buying, on average, enough airplanes to just maintain a 36 TFW force. During the time that the higher posture target existed (the early 1980s), we bought few airplanes (193 on average between 1983-87, not even enough to maintain a 30 TFW force). As with Navy construction, this is a consequence of the relative emphasis on high-end systems.<sup>25</sup> Again, unless we change our design philosophy

<sup>24</sup>This is a standard planning factor that includes allowances for pipeline aircraft, test ships, attrition, etc. Note that some aircraft—the F-111 and F-106 are two noteworthy cases in point—have or had service lives considerably longer than 20 years.

<sup>25</sup>It also reflects certain anomalous effects, for instance, much classified program spending and so on, but the general point remains valid.

considerably (and this is not now in the offing), the ultimate TAF posture should be more in the lower 30 TFW range than in the higher 30 TFWs.

## **U.S. STRATEGIC NUCLEAR FORCES OVER TIME**

As the discussion in Sec. IV noted, the U.S. strategic posture has been through several large changes over time. In the 1950s, the United States relied, among other things, on the expedient of Massive Retaliation to contain the global communist threat.<sup>26</sup> It was then felt that nuclear forces represented an area in which the United States could prevail by virtue of its technological superiority,<sup>27</sup> could support its various defense obligations at a fairly low price, and could prevent the outbreak of unpleasant and unpopular mid-level contingencies (such as Korea), among other things.

Budget trends indisputably show the importance accorded strategic nuclear forces in the 1950s; and the MFP I budget after 1961 shows the lower priority accorded these forces. The declining budget does not primarily reflect a reduction in emphasis on U.S. offensive priorities. Indeed, by many important operational indicators, the U.S. posture of the late 1960s was operationally more effective than that of the late 1950s. However, by virtue of substituting more efficient posture (for instance, missiles, and fractionated bombers and missiles) for the bomber-heavy posture of the 1950s, and following steps to make strategic planning more coherent, the total costs of maintaining a given level of absolute strategic capability declined dramatically. The declining strategic budget levels of the 1960s and 1970s also reveal the greatly diminished priorities accorded to various strategic defensive functions.

An increase in spending in the 1980s reflects no really substantial departure from the strategic concepts of the preceding two decades (save, perhaps, for a greater emphasis on certain command and control capabilities), but rather the acquisition of a highly diverse and more costly offensive Triad to replace that bought in the late 1950s and early 1960s. The increased costs of these follow-on systems is due to their greater sophistication and capability (they are, after all, designed for a more demanding set of

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<sup>26</sup>However, the commonly heard argument that nuclear forces entirely dominated U.S. strategy even at the height of the era of Massive Retaliation is probably a great overstatement. Other factors influencing strongly U.S. planning in the 1950s—perhaps on a par with that of nuclear reliance—were certain carry-over doctrinal, posture, and other legacies of World War II, and simply a less than adequate planning process.

<sup>27</sup>In this respect, such reliance was not unlike, in principle, anyway, the recently espoused concept of "competitive strategies." Department of Defense, 1988.

strategic missions and challenges), the rapid pace at which this modernization effort was undertaken (the aim being to close an alleged "window of strategic vulnerability"), the redundant nature of this modernization effort,<sup>28</sup> and certain other factors.

### **U.S. Strategic Offensive Forces**

After World War II, the United States really had no coherent plan for the acquisition of a large and balanced nuclear arsenal. Following the shocks of the Korean War and Soviet acquisition of the A-bomb, the establishment of NATO, and other developments, the United States embarked on a broad and costly program to acquire and deploy a large offensive force. For the most part, materialization of this force reflected what was technologically possible: Medium-range bombers were a first posture priority, followed by an air-refuelable long-range bomber force, and then various missile programs. Figure B.8 shows the evolution of this force over time. Through the 1950s the emphasis was on the medium and long-range bomber forces of SAC, although other force elements (a motley array of Navy carrier-based attack bombers, USAF theater aircraft, cruise and ballistic missiles of all three services, etc.) were certainly minor constituents of the overall U.S. nuclear offensive posture during this period.

When he became Secretary of Defense, Robert McNamara canceled and restructured an array of duplicative, costly, and other offensive programs, and basically configured the Triad that has remained a centerpiece of U.S. offensive posture planning to this date. McNamara's posture consisted of 1,000 silo-based Minuteman ICBMs; 656 submarine-based SLBMs; and some 250 later-model B-52G/H model bombers. To hold down costs, McNamara relied on certain planning conventions (e.g., the "Assured Destruction" force sizing concept, which has been erroneously construed as actual U.S. targeting policy), and modernization in lieu of new weapon platforms. Thus, as the nature of the threat, operational environment, and target base changed, programs were upgraded, but not replaced by follow-ons. Missiles were MIRVed, bombers were rebuilt and prepared for new operational tactics, accuracy and reliability were increased, and so on.

Because of the general funding down-turn of the 1970s, acquisition of a Triad to replace this one (MX, Trident, and the B-1A) was deferred repeatedly. Indeed, had

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<sup>28</sup>Compared with previous epochs, for instance, the United States maintained programs to develop two bombers, two ICBMs (with various basing mode options), two air-launched cruise missiles, and so on.



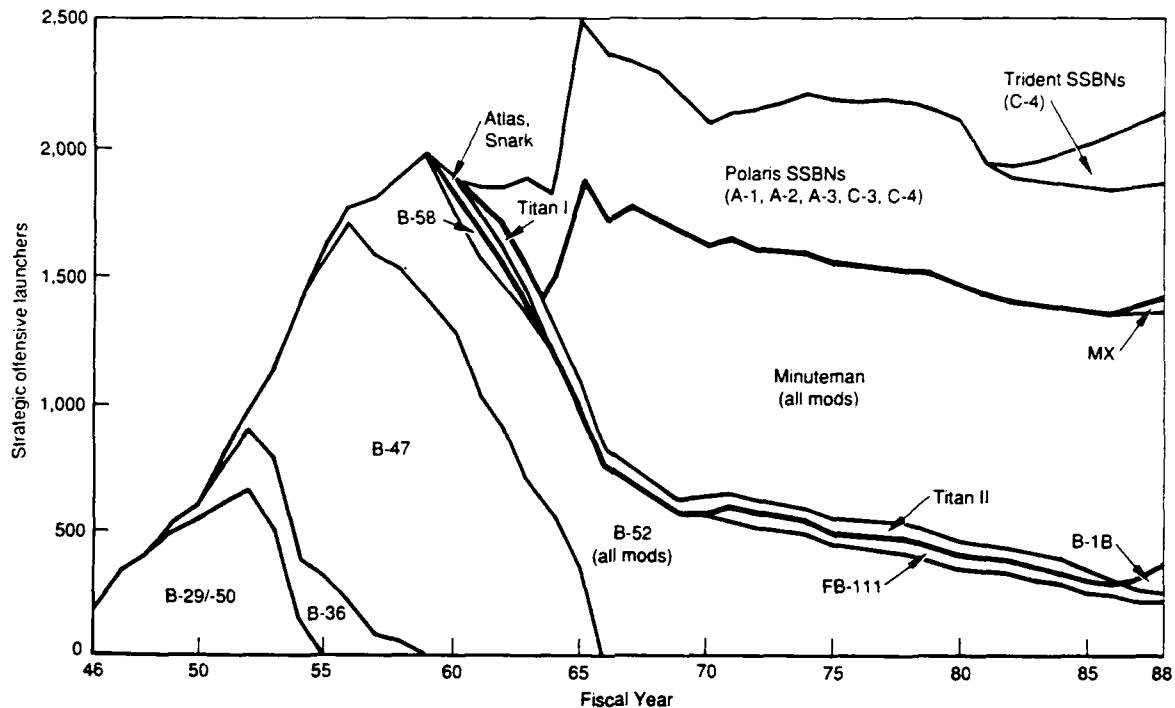


Fig. B.8—U.S. strategic offensive forces, 1946–88

original (early 1970s) plans stayed on track, by around 1984 the United States would have acquired some 100 MX, 200+ B-1As, and a dozen Trident submarines. As it was, no MX were bought by that date, only a few prototype B-1As were in hand, and the Trident force at that time consisted of five submarines. Figure B.9 shows the modernization of the Triad over the period FY57–88 with the interesting property of highly cyclical replacement.<sup>29</sup> This was not the result of any original road-map, of course, but of budget constraints.

<sup>29</sup>With certain qualifications, the entire Triad seems to be replaced during a period of fairly intensive activity at quarter century intervals. This certainly was not the intention of planners, who envisioned a more orderly modernization process. The more recent modernization period looks less impressive, in some sense, than its predecessor; but taking into account the increased weapons carriage of these more fractionated systems, the net effect for on-line warheads is at least as impressive in each leg of the Triad. Of course, present plans envision the continuation of this procurement initiative (to include the acquisition of, perhaps, several hundred small mobile ICBMs and as many as 132 B-2 Stealth bombers in total). Budget woes have cast the fate of this continuing effort into some doubt.

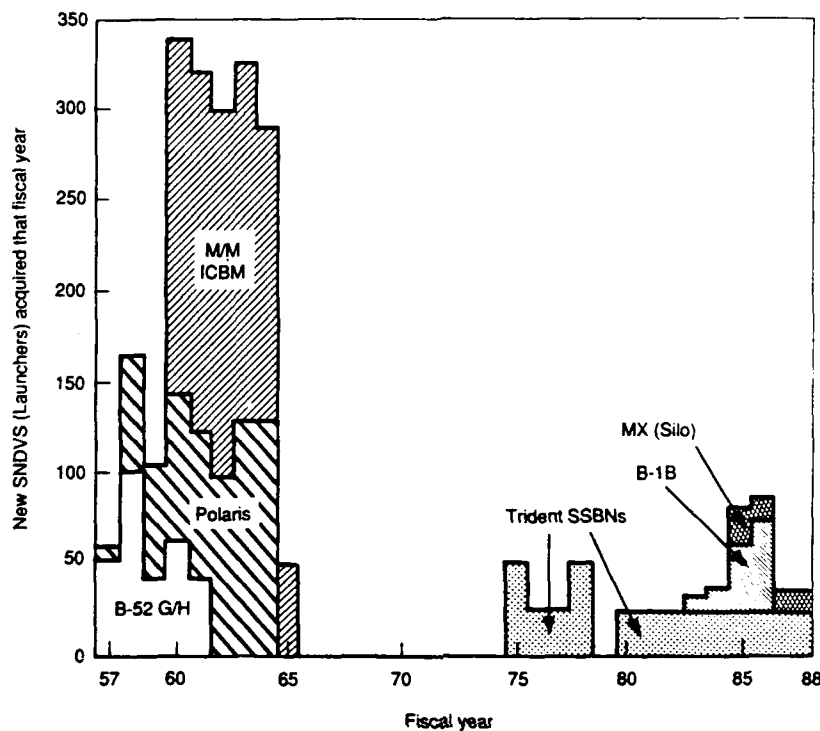


Fig. B.9—Characteristic modernization of the Triad in cycles

Anxious about a "window of vulnerability," the Reagan administration ordered many programs into procurement: 100 redesigned B-1B aircraft were bought, some 50 MX were deployed (but in MINUTEMAN silos), and various other improvements were ordered. Yet another set of follow-ons—the Stealth bomber and small ICBM among them—are currently nearing some kind of procurement choice. However, the budgetary environment of the early 1990s, combined with unexpected progress in offensive arms limitation, raises serious questions about the viability of some of these programs.

### U.S. Strategic Defensive Forces

U.S. strategic defensive capabilities have evolved considerably in form and role over time. In the 1950s, when the threat to the United States consisted of Soviet bombers and cruise missiles, the United States maintained a large anti-aircraft defense system, consisting of fighters, SAMs, and an array of ground-based radars and battle management sites. Such active defenses were backed up with a comprehensive civil

defense program. With the emergence of a Soviet intercontinental missile threat, however, defending against bombers alone made little sense. Given the technical problems of intercepting missiles, the changing strategic context for U.S. planning (including, for instance, the adoption of an Assured Destruction or Assured Retaliation force to deter enemy attacks against U.S. cities), competing financial priorities, the apparent role of arms control in removing certain threats, changing threat dimensions, and many other factors, the U.S. homeland defense effort was substantially downgraded in the early 1960s, as Fig. B.10 shows.<sup>30</sup>

This pattern of decline continued through the 1960s. By 1969, with the attainment of the ABM Treaty, U.S. force levels had fallen substantially, more and more capabilities had been transferred to the reserves, and some force elements (SAMs, civil defenses, etc.) had been more or less given up completely.<sup>31</sup> The role of strategic defenses had evolved from defense in a classic sense to denial and finally, by the mid-1970s, to a nebulous set of attack characterization and airspace control responsibilities.

Beginning in the late 1970s and early 1980s, some efforts were made to reinvigorate U.S. homeland defense posture were made, and, of course, in March 1983, President Reagan called for the development of the Strategic Defense Initiative. But despite the new interest in these waning capabilities, little in the way of concrete force enhancements occurred. This is also apparent from Fig. B.10.

## **U.S. STRATEGIC MOBILITY FORCES OVER TIME**

Strategic mobility has always been, if only in principle, a central component of U.S. strategy since serious theater rearmament efforts began in around 1950. This is an inevitable consequence of the location of key U.S. interests along the periphery of the Sino-Soviet bloc, a historical quantitative insufficiency in U.S. posture (which obviously

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<sup>30</sup>Figure B.10 shows only normal USAF interceptor and Army SAM commitments. Other force elements could be shown (radars, strategic ASW, etc.), and in some scenarios various augmentation options to enhance the posture shown in Fig. B.10 might occur.

<sup>31</sup>Moreover, after the early 1960s, no provisions at all were made for any new dedicated interceptor aircraft—forces for air defense would be drawn from forces designed for theater warfare purposes.

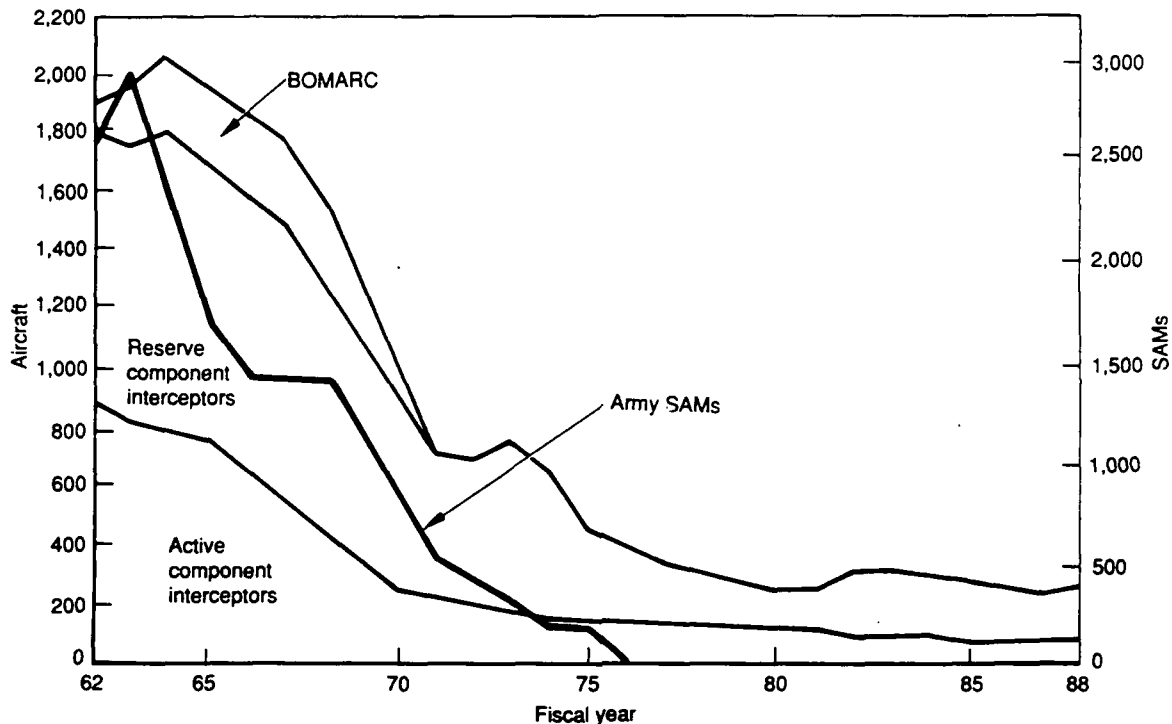


Fig. B.10—U.S. strategic defensive forces, FY62–88

prohibits stationing of full force complements in all areas of interest),<sup>32</sup> the costs of forward deployments, and, in some cases, a lack of access to local bases. These problems compel us to explore a range of strategic mobility options.

There are three generic components of a strategic mobility posture: airlift, sealift, and prepositioning. Airlift forces can consist of dedicated USAF strategic lift assets, as well as civil airliners that could be mobilized for the carriage of both equipment and personnel. U.S. civil aircraft can join the Civil Reserve Air Fleet (CRAF) program for this purpose. Sealift consists of dedicated cargo and civilian merchant shipping.

<sup>32</sup>Consequently, the United States has embraced the concept of "strategic flexibility," wherein a central U.S. reserve could be committed overseas as the conditions of a contingency required. In effect, this concept of flexibility makes a virtue of necessity (chiefly, lack of in-hand, active U.S. posture). In practice, strategic flexibility (and the ability of standard posture to engage in possibly diverse kinds of contingencies) has been hard to achieve. Strategic mobility—the ability to deploy elements of this reserve in a timely and effective way—is not the only prerequisite of this strategic flexibility concept, of course.

Prepositioning can be of two major types: on land (typically in hardened depots, a concept known as POMCUS, for "prepositioning of overseas materiel configured to unit sets"), and at sea (a concept generally known as MPS, for Maritime Prepositioning Ships). Land-based depots are closer to possible front lines and may be less vulnerable to attack and disruption of intratheater mobility systems, whereas maritime prepositioning is by definition not tied to particular locations.<sup>33</sup>

A satisfactory strategic mobility posture depends on the proper balancing of these components, plus certain other logistical, cost, infrastructure, intratheater mobility, and related issues. Airlift, particularly when supported by aerial refueling, is able to move posture relatively quickly to trouble spots. However, airlift is expensive, is not necessarily a very good way of moving heavy forces and depends on availability of bases, overflight privileges, aerial refueling resources, and so on. Sealift is necessary for delivering the majority of the tonnage that would go to a certain theater (in Vietnam, for instance, more than 96 percent of all tonnage went by sea). However, sealift also is vulnerable to SLOC interdiction and port denial; sealift is also appreciably slower than airlift and may deliver materiel to ports quite a bit removed from front lines. Prepositioning avoids certain problems attached to either air and sea-lift: The United States has an essentially unlimited capacity for moving personnel to a location; and if their equipment awaits them there, rapid deployment is possible. But both kinds of prepositioning bring with them their own unique political and vulnerability problems. Prepositioning also ties up equipment in storage (preventing its use in training).

Over time, the relative and absolute U.S. capability for strategic deployment by air or with prepositioning techniques has increased substantially. But the sealift posture has eroded considerably, partly because of the aging and nonreplacement of the once large U.S. merchant fleet, partly because of changes in the shipbuilding and merchant marine industry in the United States, and partly because of shifts in the global shipping industry.<sup>34</sup> A major initiative to acquire mobility resources of all types was outlined

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<sup>33</sup>In addition, strategic mobility capabilities as a class can include certain capabilities for the rapid and possibly opposed delivery of combat forces (e.g., airborne troop drops, or amphibious combat shipping). Moreover, some parts of the U.S. posture can self-deploy (including tactical fighters and even some kinds of helicopters).

<sup>34</sup>For instance, modern, highly cost-effective shipping emphasizes containerization: The break bulk cargo ship of World War II fame is a thing of the past economically. But containerization requires sophisticated port facilities, and container ships are so large that not every port can accommodate them.

during the McNamara years, but for political, cost, bureaucratic, and other reasons, only the airlift component of this plan was bought. In the mid-1970s, NATO POMCUS programs were greatly expanded (today the United States has equipment prepositioned in Europe for, among other things, six Army divisions and one USMC Brigade). With the fall of the Shah of Iran and the Soviet invasion of Afghanistan, a comprehensive mobility scheme to enable the United States to deploy posture rapidly into undeveloped and possibly unfriendly areas was launched. The United States was also able to take advantage of slumping shipping prices in the early 1980s to rehabilitate part of the military sealift resources.

It is difficult to quantify these capabilities very thoroughly. Consequently, Fig. B.11 and Table B.6 provide brief overviews of the historical U.S. posture in two of these mobility areas, U.S. strategic airlift resources and sealift.

In Fig. B.11, note the movement over time to an all-jet force, and then to a force composed of highly productive, air refuelable outsize and oversize capable airlifters (the C-141, C-5, and, perhaps ultimately, C-17 varieties). If U.S. procurement plans for CRAF and C-17 continue as planned, the United States should reach its airlift objective<sup>35</sup> by the mid to late 1990s.

Currently, the United States possesses about five-sixths of its nominal requirement for strategic sealift.<sup>36</sup> However, analysis of sealift needs is made complex by the many different types of ship required, and by definitional quandaries (for instance, how to treat alliance shipping, U.S. shipping registered overseas, etc.). Nonetheless, U.S. sealift capabilities have deteriorated over time. Ship types include various stores and cargo ships (of several types, including containerized shipping,<sup>37</sup> roll-on, roll-offs) tankers, and the like. Some of these come under the direct control of the Military Sealift Command

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<sup>35</sup>Of 66 million ton-miles per day of airlift, as specified by the Congressionally Mandated Mobility Study.

<sup>36</sup>The requirement is the transportation of one million tons of noncontainerized unit equipment in a single voyage, presumably by all available ships. In addition, the U.S. goals include prepositioning afloat of equipment and supplies for three Marine Expeditionary Brigades, and certain other afloat prepositioning. That for the three MEBs is in hand aboard 13 ships, and additional afloat stockage for SWA is available aboard 12 ships.

<sup>37</sup>Containerized shipping poses problems for military sealift planners in that, while more productive, it lacks flexibility and requires more in the way of port infrastructure. However, acquisition of capabilities to render military needs more compatible with such ships and certain special handling capabilities (e.g., crane ships) mitigate some of these problems.

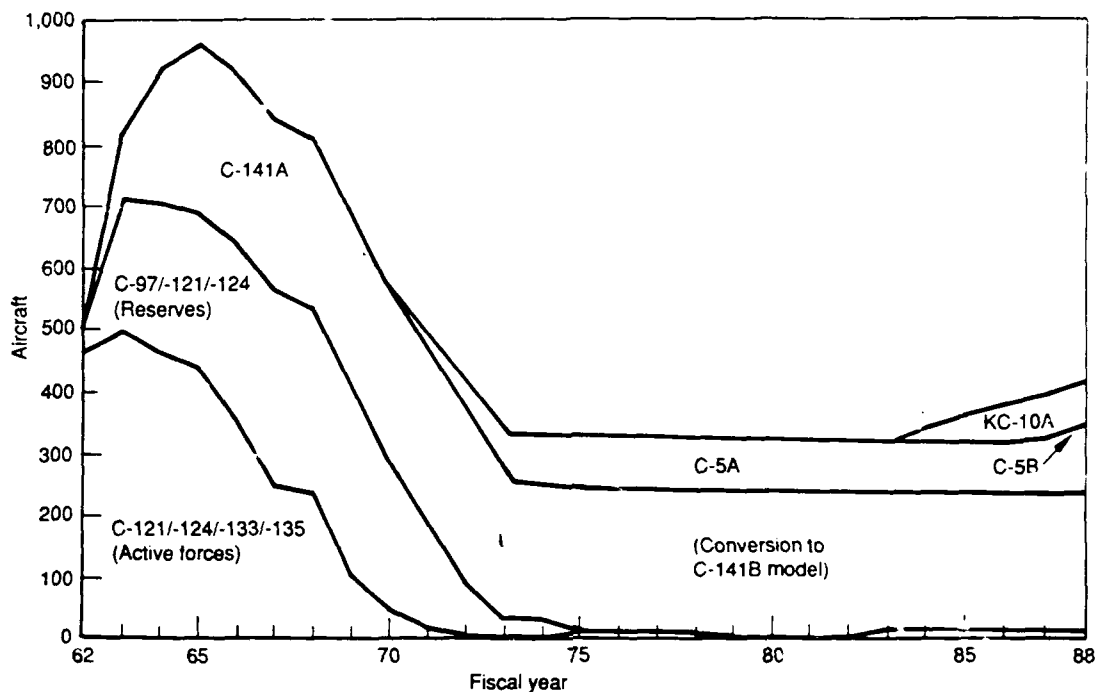


Fig. B.11—U.S. strategic airlift profile, FY62–88

(that is, they have largely civil service crews), others are under contract to the Navy, others are in some form of reserve,<sup>38</sup> others are in a status analogous to CRAF,<sup>39</sup> and allies, would provide others. In general, this force was formidable up through the 1960s, fell into disrepair in the 1970s, and has been rehabilitated considerably in the 1980s. Table B.6 provides a view of leading elements of this posture.

<sup>38</sup>The traditional U.S. merchant reserve fleet—the National Defense Reserve Fleet—was once enormous (as many as 2,000 ships), but over the years it fell into great disrepair. Thus, many older NDRF ships were disposed of, and a new rapid reaction sealift force, the Ready Reserve Force, has been built up during the 1980s. A glut on the market of certain types of cargo ships in the early 1980s made this possible.

<sup>39</sup>The U.S. flag fleet could supply, in a full-scale mobilization, some 200 dry cargo ships and 120 tankers.

Table B.6  
TRENDS IN U.S. STRATEGIC SEALIFT POSTURE, FY64-88

	1964	1968	1972	1976	1980	1984	1988
Active ships (MSC)							
Tanker	25	26	17	12	21	22	20
Cargo and stores ships	38	41	24	19	14	14	41
Other	38	63	—	—	—		
Controlled fleet charters							
Tanker	—	—	21	14	14	10	(a)
Cargo	—	—	1	21	23	26	(a)
Ready Reserve Force:	—	—	—	—	26	29	82
NDRF:	255	490	100	144	164	160	62

<sup>a</sup>Included in MSC line totals.



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